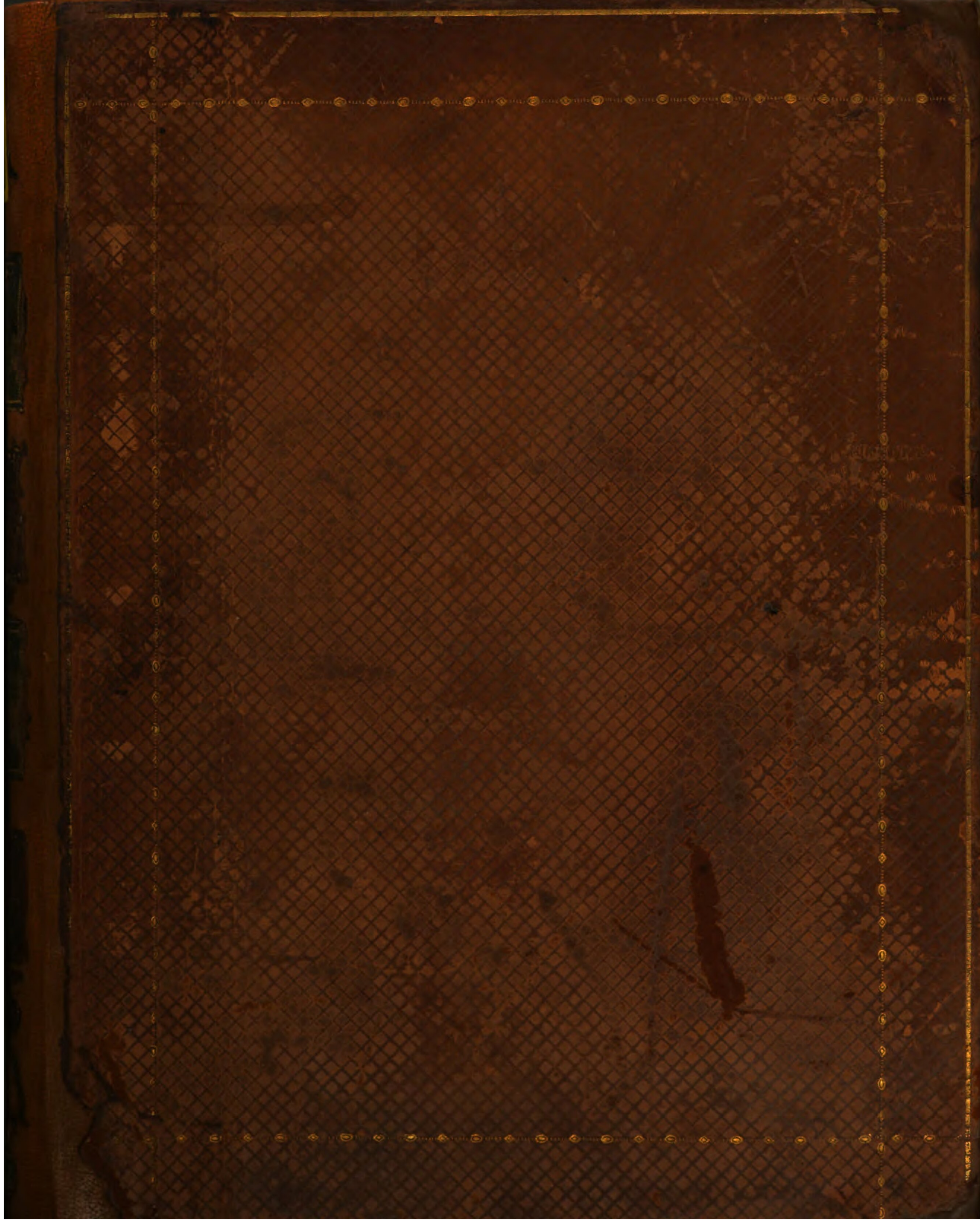






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TESTACEA BRITANNICA

OR
VOLUME SECOND

OF
BRITISH SHELLS

MARINE, LAND, and FRESH-WATER

including the most minute, systematically arranged, and

EMBELLISHED WITH FIGURES

BY

GEORGE MONTAGUE, ESQ.

Each shell, with its corresponding figure, is held in a
superficial position, the form of the whole being
this mode of display, holds a small shell, but
it will be seen, the whole is held in a position
which enables a person to see

Part I



TESTACEA BRITANNICA

OR

Natural History

OF

BRITISH SHELLS,

MARINE, LAND, and FRESH-WATER,

including the most minute: systematically arranged and

EMBELLISHED with FIGURES,

BY

GEORGE MONTAGU. F.L.S.

*Each shell, each crawling insect holds a rank
Important in the plan of Him, who framed
This scale of beings; holds a rank, which lost
Would break the chain, and leave behind a gap
Which nature's self would rue.*

Part 1.

Stillington.



1805.

TESTACEA BRITANNICA

W. M. Smith

BRITISH SHELLS

THE LONDON AND WESTMINSTER

BIBLIOTHECA
REGIA
MONACENSIS.

GEORGE MONAGHAN



TESTACEA BRITANNICA ;

OR,

BRITISH SHELLS.

PART I.

PRINTED BY J. S. HOLLIS, ROMSEY :

AND SOLD BY J. WHITE, FLEET-STREET, LONDON.

TESTACEA BRITANNICA

INTRODUCTION

As natural history has within the last half century occupied the attention and power of the ablest philologists, and as the study of shells has become a necessary part of the education of the day, of course we have seen the necessity of the naturalists were compelled to travel and inquire, and to bring home to their country the results of their inquiries.

In the present work it is intended to present to the public in the great chain of nature, the study of which may lead not only to the knowledge of the habits of the testaceous animals, but also to the knowledge of the habits of the testaceous animals, and to the knowledge of the habits of the testaceous animals.

When the great Linnæus first began his system of nature, he did not consider conchology as worthy his notice, as shells are only the covering or envelope of animals, but as their external beauty, and variety, and utility, rendered them worthy of notice.

AND SOLD BY J. WHITE, 42, ST. MARTIN'S LANE, LONDON.

INTRODUCTION.

AS natural history has, within the last half century, occupied the attention and pens of the ablest philosophers of the more enlightened parts of the globe, there needs no apology for the following sheets; since the days of darkness are now past, when the researches of the naturalist were considered as trivial and uninteresting.

In the present age, it is acknowledged, that every link in the great chain of nature is important, the study of which may tend not only to the comforts and luxuries of life, but to the love, adoration, and, admiration of that being, who alone was capable of forming the whole.

When the great LINNÆUS first began his system of nature, he did not consider conchology as worthy his notice, as shells are only the covering or exuviae of animals; but as their extreme beauty, and variety, naturally attracted attention, and their durability enabled

them to be preserved without trouble, no branch of natural history has been more sought after.

If it were possible to add to the description of each shell, that of the history of the animal inhabitant, it would, most undoubtedly, have been of great importance with respect to their arrangement: such indeed has been partially attempted, but if we consider the difficulty of obtaining the greater proportion of shells in a recent, or living state, we shall at once perceive the impossibility of classing them by the animal.

Great as the difficulty may be, to define the numerous species according to the Linnæan, or any other method, by the order, situation, and number of teeth, and formation of the hinges, in bivalves; and the structure of the mouth, or aperture, in univalves; yet we believe it is less perplexing, than it would be by the animal itself, from the impossibility of investigating by dissection, the anatomical parts of the more minute species: so that upon the whole, it must be confessed, though arbitrary, the only method of throwing shells into divisions or genera is, by their form and structure.

Various have been the attempts of different authors with regard to systematic arrangement, but we do not think

think they have improved upon the Linnæan plan, or in the least elucidated the subject: it must, however, be confessed, that some of the generic characters of that great naturalist, are not sufficient distinctions, though we admit, it would perhaps be difficult to alter them for the better: and as to the animals, that inhabit the same genus of shells, being all the same, as has been generally supposed, we may venture to affirm, that similar shells are sometimes inhabited by very different animals; and that few of the Linnæan genera of testacea, are wholly inhabited by the same kind of animal. On this subject, however, much remains to be done, being as yet in considerable obscurity.

Some new genera might probably be formed with advantage, as a vast variety of shells have been discovered since the last edition of the *Systema Naturæ*, which were wholly unknown to LINNÆUS; and amongst them many productions of our own coasts, which do not strictly belong to any of the Linnæan genera. We have, however, pretty strictly adhered to that arrangement, except in a few instances.

The genus *Lepas*, we have divided into two; after the plan of Doctor PULTENEY, as not possessing any similitude, except in that of the animal inhabitants.

Those

Those of the sessile kind, are termed *Balanus* ; while the pedunculated are continued under their original title. In the *Ostrea*, those which are aurited, are separated under the generic denomination of *Pecten* ; and we have also added a new genus next to the *Serpula*, for such as bear some affinity to that tribe, but do not come under the Linnæan characters of the genus, being independent, and not affixed by the base to other bodies ; which we have called *Vermiculum*. These last, indeed, were almost wholly unknown to LINNÆUS, and are entirely of the more minute kind.

In the species, as far as were known to that author, we have also retained his trivial names, wherever they could be clearly identified, except in a few instances, where those of some english authors were adopted, as better known to the british conchologist ; or where we had occasion to place them in different genera.

It is not our intention to trace the history of conchology from the earliest writers on the subject, as we have chiefly quoted those of more recent date, since that branch of philosophy has been better understood.

Amongst the foreign topical writers, MARTINI, CHEMNITZ, MULLER, SCHROETER, and GUALTIERI stand

stand high in reputation, to whom we have referred in general; especially the copious works of the two former, whose numerous figures have, by the aid of GMELIN, enabled us to ascertain many of the Linnæan species.

Of english testaceological authors, there are few who have treated on the subject at large; amongst these LISTER stands foremost, and who first attempted a description of english shells in 1678, in his *Historia Animalium Angliæ*; and afterwards his *Synopsis*, which contains, amongst a vast variety of foreign species, all his english shells, with additions. This work was finished in 1694, and the last edition was published at Oxford in 1770, under the inspection of Doctor HUDDSFORD.

After LISTER, PETIVER was the only one for some years, who added to conchology any thing new, except a few provincial historians, PLOT, MORTON, BORLASE, DALE and others. Nothing, however, appeared in the least compleat on the subject, exclusively on english shells, for near a century after the writings of LISTER, when Mr. PENNANT treated professedly on that history, in the fourth volume of his *British Zoology*, published in 1777, to the no small advantage of that science, by the addition of a great number of well executed figures, and by far the greater part of what he described; in which he nearly adhered to the Linnæan system.

In

In the year 1778, DA COSTA brought out his *Historia Naturalis Testaceorum Britanniae*, or British Conchology, with copious descriptions, embellished with 123 figures of distinct species, many of which were unknown to preceding writers. This author has professedly entered upon a new system, built upon his Elements of Conchology, before published; and it is to be lamented, that he did not at least adopt the Linnæan specific, or trivial names, to which the ear of the conchologist has been so long familiarized: his synonyms, however, are copious, which facilitates the identity of each species.

At this time, no one had thought the more minute shells of our coasts, of sufficient importance to give them a thorough investigation, or at least to describe them, although something of this nature had been attempted at Rome by PLANCUS in 1760, entitled *Liber de Conchis minus Notis*, in *Littore Ariminensi*.

To the indefatigable researches of Mr. BOYS of Sandwich, this task was reserved, by whose ample assistance Mr. WALKER was made acquainted with all the microscopic shells of that coast, which enabled him in the year 1784 to publish a work, entitled *Testacea minuta rariora*; in which are described 87 minute species, accompanied with figures, the most part of which were entirely new. This undertaking laid open an entire new field

field in british testaceology; and those who have since paid any attention to the subject must own, that their labours are amply repaid by the superior beauty and elegance of this diminutive tribe; and it must be confessed, that the history of shells cannot be compleat without them. From these probably some new genera might be, with propriety, formed; and to which alone we are indebted for several species of the Nautilus genus, a desideratum before in the british Fauna.

Since this period, a catalogue and description of shells, found in Dorsetshire by Doctor PULTENEY, has been given in HUTCHINS's history of that county; amongst which are many new and rare species.

Mr. DONOVAN is also at this time publishing a History of British Shells, with elegant coloured figures, which is to be concluded in sixty numbers, making five vols. octavo, four of which have already been laid before the public; these, however, have not included the more minute species.

In the Linnæan Transactions Mr. ADAMS has entered upon the subject of minute shells, and has given figures of several perfectly new, from the south coast of Wales.

Much, however, remains to be done; for when we consider the locality of the productions of nature, and the small portion of our extensive coasts, which have been examined with a microscopic eye, it need not be feared that the subject will soon be exhausted, or that we have yet a knowledge of one half of the smaller species, which elude the researches of the naked eye. In order, therefore, to make the history of british conchology as compleat as the nature of things would admit, a work was wanting, that would bring the whole into one view, systematically arranged.

Such a work we have been induced to undertake, by the great variety of shells which have fallen to our lot to discover, many of which have never been described as english, and some entirely new; which, together with those already known, will make near four hundred and seventy different species; a number far exceeding any thing hitherto on the subject, and more than treble those described by DA COSTA; and we trust it will be received with that candour usually bestowed on so intricate, and arduous an undertaking; as our best endeavours have not been wanting to elucidate a subject, the investigation of which has been productive of so much pleasure and amusement, our researches having been extensive;

tensive; not confined to the closet, but have drawn the hidden treasures from their native sites.

The descriptions are as concise as possible, consistent with the necessity of giving a full and perfect idea of each species; and figures are given of such only as are entirely new, or have not appeared in any english work, except in such cases where it was thought requisite for the purpose of comparison.* To which, in many instances, is added a short description of the animal inhabitant, a circumstance of no small importance in aid of discriminating some nearly allied species; though of no generic use in conchology. An attention to this alone, could have induced us to refer, in many instances to MULLER.

The synonyms are drawn from some of the best authors, and most topographical writers omitted, except in a few cases, where the objects were in obscurity.

b 2

Should

* As it was impossible to be aware of the extent of Mr. DONOVAN's cabinet, or of the shells he intended to figure, duplicates will unavoidably occur in a few instances in our work, as some of the plates were engraved when little more than two volumes of that publication had made its appearance. Some species also originally intended to have been given in this work, have been anticipated by Mr. DONOVAN, and thereby we are enabled to refer to good figures to illustrate our intentions, without multiplying representations of the same subjects.

Should the following sheets be deemed to possess any small share of merit, the public are indebted to the labours of a friend, who not only undertook the engraving, but in part also the colouring of the figures; executed from the objects themselves, they are a faithful representation, unadorned with the gaudy, high-coloured tints, which too often mislead.

But for this assistance, so necessary in the smaller species, this work might never have seen the light; and it is only to be regretted, that it was found too large an undertaking for the hand that gave it existence, to figure all the shells that could have been wished.

As this friend of science, however, may not undeservedly feel the shafts of the critical artist, it may be right to disarm them, by observing that, the feminine hand of the engraver was self taught, and claims no other merit in the execution, than what results from a desire to further science by a correct representation of the original drawings, taken by the same hand; both equally the works of amusement, not labour for emolument. Further, it was not originally intended that any but coloured figures should be given, and that only to a few copies, printed on superior paper; but overpowered by the desire of particular friends, plain impressions are
suffered

suffered to go into the world with the inferior copies, though executed only for the purpose of colouring.

To the naturalist therefore, and not to the artist an appeal is made; if the representations are correct outlines of the objects, the design is accomplished; and we trust science will be considered as having reaped more advantage from such, than from highly finished engravings devoid of correctness and character.

The species hereafter described, with a few exceptions, are in our own cabinet, and have chiefly been collected from their native places by ourselves, or by the hands of a few friends, whose conchological knowledge, and scientific researches are too well known to be doubted: but under every individual, the authority of its being british will be found; and when any doubts are entertained, it is particularly specified.

Aware that some shells have been given as english which never originated there, we have been cautious of admitting any thing, but upon the best authority; and where we have expressed doubt, we beg it may not be considered as arrogance, or contempt of the opinion of others, but a wish to develop truth: we are all liable to
err,

err, but those least, who search for nature where nature flows.

Subjoined will be found a succinct description of the several animals inhabiting shells as recorded by LINNÆUS and others : and a sketch of the Mullerian arrangement of univalve shells, by their several inhabitants. To which is added a copious alphabetical as well as systematical index.

It now only remains for us to return our sincere thanks to such friends as have assisted us through this undertaking with specimens, and information on the subject; and we take this opportunity of publicly acknowledging their favours.

Amongst these, particular obligations are due to our much esteemed friend, and able conchologist, the late Mr. BOYS of Sandwich, by whose kind assistance we have been able to ascertain almost the whole of the minute shells found on that coast, as published by WALKER, with many additions entirely new.* In these acknowledgments

* From this patron of science, we also received a nomenclature by Doctor SOLANDER, of many minute shells he had sent to Bullstrode for the Dutches of Portland; and others received from the Doctor at the same time, from her Grace's cabinet in return. This has been of considerable service to us with respect to synonyms.

ledgments we beg leave to include our thanks to Mr. HENRY BOYS, son to our late worthy friend, for his joint assistance.

To that able naturalist, the late Doctor PULTENEY of Blandford, we are indebted for many rare specimens from the coast of Dorsetshire, and for his information and remarks; which were not of less assistance to us than his Catalogue, published in HUTCHINS's history of that county, and separately for the use of his friends.

To Mr. SWAINSON and Mr. SOWERBY of London, we beg also to return our acknowledgments for their assistance in specimens; and moreover for the ready access to their cabinets; and for similar acts of kindness, our thanks are equally due to the Rev. THOMAS RACKETT.

The very friendly assistance given us by that promoter of science, and attentive observer of nature, Mr. BRYER of Weymouth, and in particular, for the permission of selecting any thing from his little cabinet of some of the more rare shells, found on that coast, deserves our warmest thanks; as it enabled us to add several nondescript species to this work.

And last, though not least, our valuable and worthy friend, Doctor LATHAM of Romsey, claims our
par-

particular acknowledgments, not only for the ready access to his well stored library on natural history; but for the very great assistance of superintending the press, and thereby contributing not a little to the furtherance of the design, which otherwise, for want of convenience, might have continued much longer in darkness.

We shall now conclude this introduction by remarking, that in the various pursuits of natural history, our notes on shells indigenous to Great Britain had some years past increased so considerably, and so far exceeded any thing extant upon the subject, that we had begun to throw them into some form, with intention of giving our discoveries to the world on some future day.

At this juncture, being informed by a valuable conchological friend, that such a work was undertaken by an acquaintance who would be much obliged by any assistance, we did not hesitate to relinquish our design, wishing the subject in more able hands; and most cheerfully communicated such information as was thought conducive to such a history; being always ready to lend our feeble aid to the friends of science. Several plates were engraved for this work, but for what reason the letter press never made its appearance is not known; it was, however, not intended to take in the minute species.

As

As soon, therefore, as we were informed from the best authority, that this scheme was abandoned, (which we should have the more regretted, if it had been intended to include the whole british testacea) we again took the resolution of giving our discoveries to the public in a systematical arrangement, which should include shells of every description, found within the island of Great Britain, and its circumfluent seas; the result of which, is the following sheets, in which no pains have been spared either in collecting the synonyma of authors, or in pointing out the mistakes into which they may have fallen. By thus consulting the various writers referred to, the synonyms are founded upon strict personal investigation, and not copied from others; a circumstance too frequently the cause of unnecessary extension of species, and the perplexity of science.

We do not pretend to assert that no errors are to be found in this work, on the contrary, it would be surprising if there were not many on a subject so intricate and abstruse; it must however be recollected, that in many instances where individuals have been described in a very laconic manner, reference to such objects can only depend on individual opinion; for we may venture to affirm, that scarce two conchologists will be found to a-

gree, as to the identity of a large portion of the Linnæan Testacea: in order, therefore, to obviate these embarrassments, authors have too frequently been induced to follow each other. Under these difficulties we have endeavoured to clear the way, as well as the nature of circumstances would admit,

Whenever we have pointed out the errors of others, it has been wholly with a view to elucidate the subject, without the least intention of disparagement to such works; and we trust it will be found, that none of our illustrative remarks carry with it invective.

We, in our turn, expect similar remarks by others, who may hereafter treat on the subject, when time and opportunity may have encreased the catalogue of english shells: till then, we hope our endeavours will be rewarded by the approbation of the scientific reader, (at least for the good intention,) with whom it remains to determine, whether we have fallen short, or not, of the general plan.

GEORGE MONTAGU.

Knowle, Sep. 1, 1803.

SYSTEMATIC INDEX.

DIV. I.

MULTIVALVE SHELLS.

GEN. I. CHITON.

	Page.
1 Marginatus	1
2 Lævis	2
3 Septemvalvis	3
4 Cinereus	ib.
5 Albus	4
6 Crinitus	ib.
7 Fascicularis	5

GEN. II. BALANUS.

1	Communis	6
2	Balanoides	7
3	Punctatus	8
4	Rugofus	ib.
5	Clavatus	10
6	Tintinnabulum	ib.
7	Costatus	11
8	Conoides	12
9	Striatus	ib.
10	Diadema	13

GEN. III.

LEPAS.

	Page.
1 Anatifera	15
2 Anserifera	16
3 Sulcata	17
4 Scalpellum	18
5 Fascicularis	557

GEN. IV.

PHOLAS.

1	Daetylus	20
2	Parvus	22
3	Crispatus	23
4	Candidus	24
5	Striatus	26

DIV. II.

BIVALVE SHELLS.

GEN. V.

MYA.

1	Pholadia	28
2	Arçenaria	30
3	Truncata	32
4	Margaritifera	33

	Page.
5 Ovalis	34
6 Pictorum	36
7 Inæquivalvis	38
8 Suborbicularis	39
9 Pubescens	40
10 Prætenuis	41
11 Distorta	42
12 Bidentata	44

GEN. VI. SOLEN.

1 Siliqua	46
2 Novacula	47
3 Enfis	48
4 Vagina	ib.
5 Pellucidus	49
6 Legumen	50
7 Fragilis	51
8 Antiquatus	52
9 Minutus	53
10 Vespertinus	54
11 Squamofus	565
12 Pinna	566

GEN. VII. TELLINA.

1 Ferventis	55
2 Squalida	56
3 Læta	57
4 Donacina	58
5 Tenuis	59
6 Striata	60
7 Fabula	61
8 Solidula	63
9 Fauſta	64
10 Craſſa	65
11 Proſicua	66
12 Radula	68
13 Bimaculata	69

	Page.
14 Lactea	70
15 Rotundata	71
16 Flexuosa	72
17 Carnaria	73
18 Inæquivalvis	75
19 Maculata	75

GEN. VIII. CARDIUM.

1 Edule	76
2 Aculeatum	77
3 Echinatum	78
4 Ciliare	79
5 Lævigatum	80
6 Nodosum	81
7 Elongatum	82
8 Exiguum	ib.
9 Medium	83
10 Rubrum	ib.
11 Discors	84
12 Muricatulum	85
13 Arcuatum	ib.
14 Corneum	86
15 Amnicum	ib.
16 Lacustre	89
17 Tuberculatum	568

GEN. IX. MACTRA.

1 Solida	92
2 Subtruncata	93
3 Stultorum	94
4 Dealbata	95
5 Compressa	96
6 Boyſii	98
7 Triangularis	99
8 Lutraria	ib.
9 Hians	101
10 Glaucia	571
11 Tenuis	572

GEN.

GEN. X.	DONAX.	Page.
1	Trunculus	103
2	Denticulata	104
3	Complanata	106
4	Plebeia	107
5	Irus	108
6	Castanea	573

GEN. XI.	VENUS.	Page.
1	Paphia	110
2	Verrucosa	112
3	Striatula	113
4	Islandica	114
5	Chione	115
6	Exoleta	116
7	Undata	117
8	Tigerina	119
9	Sinuosa	120
10	Ovata	ib.
11	Minima	121
12	Subcordata	ib.
13	Granulata	122
14	Deflorata	123
15	Decussata	124
16	Pullastra	125
17	Perforans	127
18	Virginea	128
19	Aurea	129
20	Sulcata	131
21	Triangularis	577
22	Spinifera	ib.

GEN. XII.	CHAMA.	Page.
1	Cor	134

GEN. XIII.	ARCA.	Page.
1	Pilosa	136
2	Lactea	138

GEN. XIV.	PECTEN.	Page.
3	Noæ	139
4	Minuta	140
5	Nucleus	141

GEN. XIV.	PECTEN.	Page.
1	Maximus	143
2	Jacobæus	144
3	Opercularis	145
4	Varius	146
5	Lineatus	147
6	Distortus	148
7	Obsoletus	149
8	Glaber	150
9	Lævis	ib.

GEN. XV.	OSTREA.	Page.
1	Edulis	151
2	Striata	153

GEN. XVI.	ANOMIA.	Page.
1	Ephippium	155
2	Squamula	156
3	Aculeata	157
4	Undulata	ib.

GEN. XVII.	MYTILUS.	Page.
1	Edulis	159
2	Incurvatus	160
3	Pellucidus	ib.
4	Barbatus	161
5	Modiolus	163
6	Umbilicatus	164
7	Rugosus	ib.
8	Præcifer	165
9	Crista galli	166
10	Discors	167
11	Discrepans	169
12	Cygneus	

	Page.
12 Cygneus	170
13 Anatinus	171
14 Avonensis	172
15 Striatus	173
16 Ungulinus	582

GEN. XVIII. PINNA.

1 Pectinata	178
2 Ingens	180
3 Muricata	183

DIV. III.

UNIVALVE SHELLS.

GEN. XIX. NAUTILUS.

1 Beccarii	186
2 Beccarii perversus	187
3 Crispus	ib.
4 Lævigatulus	188
5 Calcar	189
6 Depressulus	190
7 Umbilicatulus	191
8 Craffulus	ib.
9 Lacustris	ib.
10 Carinatulus	195
11 Semilituus	196
12 Rectus	197
13 Radicula	ib.
14 Subarcuatus	198
15 Jugosus	ib.
16 Costatus	199

GEN. XX. CYPRÆA.

1 Pediculus	200
2 Arctica	201
3 Bullata	202
4 Voluta	203

GEN. XXI. BULLA.

	Page.
1 Lignaria	205
2 Ampulla	206
3 Patula	207
4 Aperta	208
5 Haliotoidea	211
6 Plumula	214
7 Catena	215
8 Emarginata	216
9 Denticulata	217
10 Hydatis	ib.
11 Akera	219
12 Cyliodracea	221
13 Umbilicata	222
14 Truncata	223
15 Obtusa	ib.
16 Diaphana	225
17 Fontinalis	226
18 Hypnorum	228

GEN. XXII. VOLUTA.

1 Tornatilis	231
2 Pallida	232
3 Jonenfis	233
4 Denticulata	234
5 Alba	235
6 Catenata	236

GEN. XXIII. BUCCINUM.

1 Undatum	237
2 Lapillus	239
3 Reticulatum	240
4 Macula	241
5 Ambiguum	242
6 Hepaticum	243
7 Bilineatum	244
8 Perdix	ib.
9 Lineatum	

	Page.
9 Lineatum	245
10 Cinctum	246
11 Minimum	247
12 Terrestre	248
13 Obtusulum	250
14 Breve	ib.
15 Minutum	ib.
16 Læve	251
17 Obtusissimum	ib.

GEN. XXIV. STROMBUS.

1 Pes Pelecani	253
2 Costatus	255

GEN. XXV. MUREX.

1 Despectus	256
2 Antiquus	257
3 Corneus	258
4 Erinaceus	259
5 Purpureus	260
6 Linearis	261
7 Muricatus	262
8 Turricula	ib.
9 Rufus	263
10 Sinuofus	264
11 Costatus	265
12 Attenuatus	266
13 Gracilis	267
14 Nebula	ib.
15 Septangularis	268
16 Fuscatus	269
17 Tubercularis	270
18 Adversus	271
19 Reticulatus	272
20 Minutissimus	273

GEN. XXVI. TROCHUS.

1 Ziziphinus	274
--------------	-----

	Page.
2 Tenuis	275
3 Exiguus	277
4 Striatus	278
5 Tumidus	280
6 Crassus	281
7 Magus	283
8 Cinerarius	284
9 Umbilicatus	286
10 Terrestris	287
11 Fuscus	289
12 Cinereus	ib.

PART II.

GEN. XXVII. TURBO.

	*
1 Terebra	293
2 Cinctus	295
3 Clathrus	296
4 Clathratulus	297
5 Elegantissimus	298
6 Nitidissimus	299
7 Unicus	ib.
8 Subtruncatus	300
9 Truncatus	ib.
10 Littoreus	301
11 Tenebrosus	303
12 Rudis	304
13 Striatulus	306
14 Vinctus	307
15 Auricularis	308
16 Canalis	309
17 Craffior	ib.
18 Parvus	310
19 Costatus	311
20 Striatus	312
21 Bryereus	313
22 Coniferus	314

23 Denticu.

GEN. XXVII. (Continued.)

	Page.
23 Denticulatus	315
24 Cimex	ib.
25 Subumbilicatus	316
26 Ventrosus	317
27 Ulvæ	318
28 Pullus	319
29 Punctura	320
30 Ruber	ib.
31 Vitreus	321
32 Decussatus	322
33 Reticulatus	ib.
34 Spiralis	323
35 Interstinctus	324
36 Unidentatus	ib.
37 Plicatus	325
38 Pallidus	ib.
39 Nivofus	326
40 Semicostatus	ib.
41 Unifasciatus	327
42 Cingillus	328
43 Quadrifasciatus	ib.
44 Interruptus	329
45 Retiformis	330
46 Fuscus	ib.
47 Strigatus	331
48 Carinatus	ib.
49 Rivulus	ib.
50 Sandvicensis	332
51 Fulgidus	ib.
52 Albulus	ib.
53 Scriptus	333
54 Subarcuatus	ib.
55 Elegans	ib.
56 Divisus	334
57 Subrufus	ib.
* *	
58 Muscorum	ib.

	Page.
59 Sexdentatus	337
60 Tridens	338
61 Carychium	339
62 Juniperi	340
63 Elegans	342
64 Fasciatus	346
65 Fontinalis	348
* * *	
66 Perversus	355
67 Bidens	357
68 Laminatus	359
69 Biplicatus	361
70 Labiata	362
71 Vertigo	363
72 Jugosus	586

GEN. XXVIII. HELIX.

	Page.
* 1 Stagnalis	367
2 Fragilis	369
3 Palustris	370
4 Fossaria	372
5 Peregra	373
6 Auricularia	375
7 Putris	376
8 Glutinosa	379
9 Lutea	380
10 Limosa	381
11 Lævigata	382
12 Detrita	384
13 Vivipara	386
14 Tentaculata	389
15 Lubrica	390
16 Obscura	391
17 Subcylindrica	393
18 Lackhamensis	394
19 Octanfracta	396
20 Polita	398
21 Decussata	399
22 Labiosa	400

23 Petræa

GEN. XXVIII. (Continued.)

	Page.
23 Petræa	403
* *	
24 Pomatia	405
25 Asperfa	407
26 Nemoralis	411
27 Hortensis	412
28 Arbuftorum	413
29 Virgata	415
30 Cingenda	418
31 Rufescens	420
32 Cantiana	422
33 Hispida	423
34 Fusca	424
35 Lucida	425
36 Trochiformis	427
37 Lacuna	428
38 Spinulofa	429
39 Caperata	430
40 Radiata	432
41 Umbilicata	434
42 Lapidica	435
43 Ericetorum	437
44 Subcarinata	438
45 Depreffa	439
46 Paludofa	440
47 Crenella	441
48 Unifpiralis	443
49 Refupinata	444
50 Globofa	ib.
51 Reticulata	ib.
52 Striata	445
53 Coarctata	ib.
54 Tubulata	446
55 Variegata	ib.
56 Fasciata	ib.
57 Nitidiffima	447
58 Bicolor	ib.

	Page.
* * *	
59 Cornea	448
60 Complanata	450
61 Carinata	451
62 Vortex	454
63 Spirorbis	455
64 Contorta	457
65 Alba	459
66 Cristata	460
67 Fontana	462
68 Nautilæus	464

GEN. XXIX. NERITA.

1 Littoralis	467
2 Pallidula	468
3 Glaucina	469
4 Fluviatilis	470
5 Pellucida	472
6 Alba	ib.

GEN. XXX. HALIOTIS.

1 Tuberculata	473
---------------	-----

GEN. XXXI. PATELLA.

1 Vulgata	475
2 Pellucida	477
3 Parva	480
4 Bimaculata	482
5 Fluviatilis	ib.
6 Lacustris	484
7 Antiquata	485
8 Ungarica	486
9 Militaris	488
10 Chinenfis	489
11 Fiffura	490
12 Apertura	491
13 Græca	492

GEN. XXXII. DENTALIUM.

	Page
1 Entalis	494
2 Striatum	495
3 Gadus	496
4 Imperforatum	ib.
5 Trachea	497
6 Glabrum	497

GEN. XXXIII. SERPULA.

*	
1 Spirorbis	498
2 Spirillum	499
3 Granulata	500
4 Carinata	502
5 Corrugata	ib.
6 Cornea	503
7 Heterostropha	503
8 Sinistrorsa	504
9 Minuta	505
13 Lucida	506
11 Reverfa	508

* *

12 Vermicularis	509
13 Triquetra	511
14 Tubularia	513

* * *

15 Lobata	515
-----------	-----

GEN. XXXIV. VERMICULUM.

*

1 Incurvatum	518
2 Pervium	.ib

3 Bicorne	Page. 519
4 Perforatum	ib.
5 Intortum	520
6 Subrotundum	521
7 Oblongum	522

* *

8 Lacteum	522
9 Striatum	523
10 Globosum	ib.
11 Læve	524
12 Marginatum	ib.
13 Retortum	ib.
14 Perlucidum	525
15 Urnæ	ib.
16 Squamosum	526

GEN. XXXV. TEREDO.

1 Navalis	527
-----------	-----

GEN. XXXVI. SABELLA.

1 Alveolata	540
2 Penicillus	541
3 Granulata	544
4 Chryfodon	546
5 Conchilega	547
6 Lumbricalis	549
7 Cirrata	550
8 Arenaria	552
9 Subcylindrica	ib.
10 Setiformis	553
11 Curta	554
12 Compressa	555

GENERIC



GENERIC CHARACTERS

OF

The feveral Animals inhabiting Shells,

Many of which are found independent, in a true Mollusca state.



SHELL, is the natural covering of many animals for the protection, security, and defence of their soft and delicate bodies; and which grows, and enlarges as the encreasing bulk of the animal requires: it must therefore be considered as much a part of the animal as the covering of a crab or a tortoise.

The animals hitherto discovered to inhabit the shells of Great Britain, which have been thoroughly defined, and reduced to systematic arrangement are

- | | |
|-----------|--------------|
| 1 Doris | 6 Spio |
| 2 Triton | 7 Amphitrite |
| 3 Ascidia | 8 Terebella |
| 4 Tethys | 9 Nereis? |
| 5 Limax | |

1 DORIS.

Body creeping, oblong, and flat beneath; mouth placed below on the fore part: vent behind, usually on the back, and surrounded by a fringe: feelers two or four, seated on the upper part of the body in front, and retractile within their proper receptacles.

The *Doris* is the inhabitant of the *Chiton*: many elegant species are mollusca.

2 TRITON.

Body oblong; mouth with an involute spiral proboscis: tentacula or arms twelve, six on each side, divided nearly to the base, the hind ones cheliferous.

The *Triton* is found to inhabit *Balanus* and *Lepas*: and one single species inhabits the sea in a mollusca state.

3 ASCIDIA.

Body fixed, roundish, and apparently issuing from a sheath: apertures two, generally placed near the upper part, one beneath the other: adhere by their base to rocks, shells, and other marine substances; are more or less gelatinous, and seem to have no other powers of motion

tion than contracting and dilating themselves alternately, by which means they eject the water taken in, with considerable force.

The *Ascidia* is rather a numerous genus: is found to inhabit *Pholas*, *Solen*, some of the *Mya*, *Mastra*, and probably part of other bivalve testacea: many species are mollusca.

It is probable this, as well as most other aquatic animals possessed of little or no locomotion, are androgynous; the power of self-propagation most likely extends to all the inhabitants of multivalve and bivalve testacea, but to few, if any, of the univalve, except *Serpula*, or such as are sessile.



4 TETHYS.

Body detached, rather oblong, fleshy, without peduncles: mouth with a terminal, cylindrical proboscis, under an expanded membrane or lip: apertures two on the left side of the neck.

The *Tethys* is not found in a mollusca state in the British seas, but is supposed to inhabit the greater part of bivalve shells; according to LINNÆUS, the *Tellina*, *Cardium*, *Mastra*, *Venus*, *Ostrea*, and others; this, however, is not without exceptions in many instances.

5 LIMAX.

5 LIMAX.

Body oblong, creeping, with a fleshy kind of shield above, and a longitudinal flat disk beneath: aperture placed on the right side within the shield: feelers four, situated above the mouth, with an eye at the tip of each of the larger ones.

These are what have been generally considered as the generic characters of the *Limax*, Slug, or Snail, and seem to correspond with the formation of those species which are found in a mollusca state; but with respect to the various animals which have been considered as belonging to this genus, for the most part inhabiting the turbinated univalve shells, we fear too much latitude is required to bring the whole, or even the greater part of them, into the *Limax* genus. It is well known that most, if not all, fresh-water, as well as most marine univalve shells, are inhabited by an animal possessed of only two feelers, or tentacula, destitute of eyes at their tips, but placed at their base, varying in situation in different subjects: in some also the tentacula are long, and setaceous, in others short, broad and flat.* It is also a question whether the aperture on the right side would take in those animals which have every other character of the true *Limax*, found to inhabit the heterostrophe, or reversed shells,† all of which have the foramen, or aperture on the left side.

The

* From the number and formation of the tentacula; and the relative situation of the eyes, MULLER has formed many new genera out of the *Linnaean Limax*.

† For a definition of this appellation, see page 351.

The Linnæan characters certainly take in the whole of the land shells we are acquainted with, except these, and one or two others; but besides the difference in the number of tentacula, and situation of the eyes, the circumstance of the aquatic testacea being inhabited by animals of different sexes, and not hermaphrodites, as in the mollusca *Limaces*, and such as inhabit most land shells, have never been thoroughly attended to. These, however various, have generally been considered to come indiscriminately within the *Limax* genus; as such we shall leave them at present, this work being professedly on shells, and not on their animal inhabitants, more than is sufficient for specific purposes.

At the end of this, we have subjoined a plan of MULLER'S arrangement of univalve testacea by the animal, in order to shew to what great variety the Linnæan *Limax* is extended.

6 SPIO.

Body projecting from a tube, jointed, and furnished with dorsal fibres: peduncles rough with bristles, and placed towards the back: feelers two, long, simple: eyes two, oblong.

The *Spio* inhabits *Sabella*: one or two species on our coasts very minute, the cases, not described under the article *Sabella*, being invisible to the naked eye.

7 AMPHI-

7 AMPHITRITE.

Body projecting from a tube and annulate: peduncles, or feet small, numerous, with lateral fasciculi, and branchiæ: feelers two, approximate, feathered: no eyes.

The *Amphitrite* inhabits some species of *Serpula*, and *Sabella*, or holes in rocks.

8 TERESELLA.

Body oblong, creeping, naked, furnished with lateral fascicles or tufts, and branchiæ: mouth placed before, furnished with lips, without teeth, and protruding a clavated proboscis: feelers numerous, ciliated, capillary, seated round the mouth.

The *Terebella* inhabits many species of *Serpula*, *Dentalium*, and *Sabella*; many are destitute of any natural covering, but fix themselves in holes of rocks.

9 NEREIS.

Body long, creeping, with numerous lateral peduncles, or feet on each side, and fasciculi: feelers simple, rarely none: eyes two or four, rarely none.

The

The *Nereis* is said to inhabit the *Sabella*; possibly in some instances this may hold good, but we suspect the greater part are independent in a mollusca state, inhabiting the sand and mud at the bottom of the sea, where they form themselves cells; and are much more active than the other three preceding species.

Besides the animals here enumerated, there are doubtless many whose habitations are testaceous, which at present are wholly unknown: that of the *Nautilus* seems to be very imperfectly understood: it is figured in *Rumpf. Mus.* tab. 17. fig. B. but no one appears as yet to have arranged it, or even ventured to give it a name.

It is most probable, many of the minute straight *Nautili* are inhabited by animals very different from those of the convoluted kinds.

Some species of *Serpula*, especially those of a conca-merated structure, are doubtless inhabited by animals of a different nature from those which reside in shells of a more simple form.

The *Vermicula* are probably inhabited by various animals, as their structure is so variable; but it is likely we shall ever remain in ignorant conjecture with respect to the conformation, and anatomical definition, of such diminutive creatures, so obscured by their testaceous covering.

MULLER'S ARRANGEMENT
 OF
 UNIVALVE TESTACEA,
 BY THEIR
 SEVERAL ANIMALS.

MULLER has divided his *Vermes terrestres & fluviatiles* into genera, by the number, and form of the tentacula, and situation of the eyes; by which the Linnæan arrangement of testacea is overthrown, and mixed indiscriminately throughout the Mullerian system: in this the mollusca Snails, or naked *Limaces*, are included, as the fourth column of the plan annexed will evince, where the Linnæan generic names are prefixed to those of MULLER, enumerated in the third column.

WITHOUT SHELL.

	<i>Mull. Syst.</i>	<i>Lin. Syst.</i>
Tentacula linear 4	{ eyes at the tip of the longest.	} Limax. Limax.

UNIVALVE

UNIVALVE SHELL.

		Mull. Syst.	Lin. Syst.
Tentacula linear 4	eyes at the tip of the longest	Helix.	Helix.
Tentacula linear 2	eyes at the tip	Vertigo.	Turbo.
Tentacula fetaceous 2	eyes at the base exterior	Nerita.	{ Helix. Turbo.
	eyes at the base interior	Planorbis.	{ Helix. Bulla.
Tentacula truncated 2	eyes at the base posterior	Valvata.	Helix.
	eyes at the base interior	Ancylus.	Patella
Tentacula triangular 2	eyes at the base posterior	Carychium.	Turbo.
	eyes at the base interior	Buccinum.	Helix.

TO THESE MAY BE ADDED,

Tentacula fetaceous 2	} eyes at the base	Turbo.
Feelers 2 one plumose		

The last division does not belong to the Mullerian system, but is introduced for the purpose of shewing another strong sub-division by the animal; and which would include the *Valvata* of MULLER. It is very extraordinary, that author did not avail himself of such a strong mark of distinction for his generic character of *Valvata*; whereas, he has only used it specifically by calling the only species he knew *cristata*. To this, however, might be added, his *Nerita piscinalis*, the *Turbo fontinalis* of this work; which is also crested or plumose.

Besides what has already been remarked, that some of this class are hermaphrodite, and others of different sexes; it will be found also that some are oviparous, and others viviparous: and it is remarkable, that all those

with four tentacula, whose eyes are placed at the summit of the two longest, are hermaphrodite, and are all land species. Those with two tentacula, and their eyes situated on the head, are of different sexes; and except two known species at present (*Turbo elegans*, and *Carychium*,) are all aquatic.

Among this last division, one or two are *viviparous*, a circumstance not known amongst the land species.

If under such variations these animals are all to be considered as *Limaces*, the generic characters must be a little more extended than those fixed by *Linnæus*; and should at least run thus to comprehend all the varieties.

Body oblong, creeping, with a longitudinal flat disk beneath; aperture most usually placed on the right side: tentacula two, or four: eyes two, placed either at the base of the tentacula on the head, or at the extremity of the two longest.*

That the Linnæan *Limax* ought to be divided there can not be the least doubt; but we cannot agree with MULLER, that it is capable of forming so many genera, by the mere circumstance of the eyes being placed a little more or less behind, or to one side of the tentacula. There seems, however, to be two strong natural divisions;

* If the animal of *Turbo elegans* should prove to be possessed of four eyes, which we suspect, the characters must be further extended thus, eyes two, rarely four, &c.

fions: first, those with ocellated tentacula; and second, such as have their eyes situated on the head: each of which might again be divided into two families; thus,

1 LIMAX.

Body oblong, creeping, with a longitudinal, flat disk, or sustentaculum, beneath: foramen, or aperture, most usually placed on the right side: tentacula ocellated.

Terrestrial, hermaphroditical.

* Tentacula four: eyes two, placed at the summit of the two longest.

** Tentacula two.



2 LUBRICA.

Body oblong, creeping, with a longitudinal flat disk, or sustentaculum, beneath: foramen, or aperture, most usually situated on the right side: tentacula not ocellated: eyes two, placed on the head. Mostly aquatic, and of different sexes,

* Tentacula, or feelers, four, one of which is plumose.

** Tentacula two.

To the first division of the *Limax* would belong all the mollusca tribe usually termed Slugs: of these the *Limax*

cinereus

cinereus and *agrestis*, GMELIN p. 3100, and p. 3101,* appear to be the link between the testacea and mollusca, (being possessed of a shelly substance under the shield upon the back,) connecting these land animals together; as some of the marine *Bullæ* do that of the aquatic: *Bulla aperta*, *haliotoidea*, and *plumula*, equally conceal their shells.

The circumstance of some of the naked *Limaces* possessing a shell internally, the anatomical enquiries of SWAMMERDAM and LISTER could not overlook; both these authors have described and figured it.†

That these animals therefore belong as much to the *Vermes testacea* as many of the *Bulla*, there is no doubt; but it was not thought necessary at present to form a new genus on purpose, for a shapeless shell of irregular growth.

It is usually somewhat oval, sometimes flat and thin, with a membranaceous margin; others are half as thick as they are broad, and rarely possessed of any concavity: colour silvery-white, or of a micaceous appearance; the upper side is a little convex, and slightly wrinkled concentrically to the smaller, or posterior, end: the under
part

* *Limax filans*. *Lin. Trans.* iv. p. 85. tab. 8. Both these *Limaces* are capable of suspension, as well as others which are destitute of similar internal conformation. *Limax parvus cinereus*. *Lister Conch.* t. 101. f. 101.—*Id.* t. anat. f. 5.

† *Hill. Swammerd.* p. 71. t. 8. f. 8.—*List. Conch.* t. 5. anat. f. 5.—*Id. Angl.* p. 128. t. 2. f. 15.

part is sometimes rough, and granulated with crystal-like, shining angles.

This shell is the *Lapis limacis* or Snail-stone of authors, and is said to have been used for medical purposes: according to popular opinion, it cures the tertian ague, if fastened to the patient's arm.*

FAVANNE has figured several species of *Limax* in his *Zoomorphose*, tab. 76, that appear to be the intermediate link between such as possess an internal shell, and those with testaceous covering; these have only a small shell attached to the posterior end. But as no such have been discovered in *England*, we only mention it to shew the nice gradations in nature's work; and how utterly impossible it is to divide that chain, which she has so admirably linked together.

* Encyclopædia Britannica.

ERRATA.

PART I.

- Page 2, l. 4, for eight read *eighths*
 9, 17, run *r. runs*
 18, margin, Scalpillum, f. 4.
 r. f. 3
 38, ditto, Inequevalvis *r. Inæ-*
 quivalvis
 39, l. 14, entrance, *r. entrances*
 41, margin, Prætenuis, *r. Præ-*
 tenuis
 108, Synonyms, Borl. Corn. t. 38
 r. t. 28
 152, l. 22, rocky, *r. rocky*
 175, note,* antennæ was, *r. were*
 215, l. 7, pinnatifid, *r. pinnati-*
 fid
 217, l. 4, nd, *r. sand*
 245, margin, Lrneatum *r. Line-*
 atum
 249, Gualteri, *r. Gualtieri*
 250, dele : after *anfractibus*
 271, l. 1. month, *r. mouth*
 272, l. 22, Sandwhich, *r. Sand-*
 wich
 288, l. 16, Anglica *r. Angliæ*

PART II.

- Page 327, margin, for 37, read 41.
 362, ditto, & p. 590 T. labia-
 ta r. labiatus
 398, l. 23, Actinea, *r. Acti-*
 nia
 409, 410, 412, spiculi, *r. spi-*
 cula
 464, margin and p. 597, He-
 lix Nautilus, *r. Nautilus*
 482, l. 16, breath *r. breadth*
 492, l. 13, heighth, *r. height*
 524, l. 9, striata, *r. striatum*
 529, l. 23, Pholas, *r. Pholades*
 532, l. 7, acount *r. account*
 552, l. 3, anterior, *r. posterior*
 595 Index, omitted *Inæqui-*
 striata Tellina, 567
 597 Membranaceus Helix, *r.*
 Turbo
 600 Striatum Ostrea *r. Ostreum*
 601 Vulgare Ostrea, *r. Ostreum*

DIV. I
MULTIVALVE SHELLS.

BRITISH SHELLS.

DIV. I. MULTIVALVE.

II. BIVALVE.

III. UNIVALVE.

MATTHEW 24:1-14

THE END OF THE WORLD

THE END OF THE WORLD

THE END OF THE WORLD

And he said unto them, Watch ye, for ye know not the day of the Lord's coming.

For as it was in the days of Noah, so shall it be also in the days of the Son of Man.

For as it was in the days of Noah, so shall it be also in the days of the Son of Man.

For as it was in the days of Noah, so shall it be also in the days of the Son of Man.

For as it was in the days of Noah, so shall it be also in the days of the Son of Man.

And he said unto them, Watch ye, for ye know not the day of the Lord's coming. For as it was in the days of Noah, so shall it be also in the days of the Son of Man.

DIV. I.

MULTIVALVE SHELLS.

GEN. I.

CHITON.

Animal a DORIS.

SHELL, constructed of many plates or valves, placed transversely on the back of the animal, and lying upon each other at the anterior edge.

Chiton Marginatus. *Gmel. Syst.* p. 3206. 26.

Br. Zool. t. 36. f. 2.

Pult. Cat. Dorset. p. 25.

Turt. Lin. iv. p. 165.

1.

MARGINATUS.

C. with eight valves carinated along the back, projecting over each other in a point or beak on the dorsal elevation: when viewed with a glass appears like shagreen;

green, margined: colours various, dusky, cinereous-brown, inclining to flesh-colour, sometimes mottled; shape oblong-oval; length five-eighths of an inch; breadth three eighths.

This seems to be the shell described by Mr. PENNANT, but we never could observe the margin sufficiently reflected to become a character, or that the edge is more serrated than in most other species. It was originally found at *Scarborough*, by the above author: and Doctor PULTENEY mentions it on the *Dorsetshire* coast.

We have not unfrequently taken it by dredging in *Salcomb bay*, in *Devonshire*, affixed to oysters, and other shells, as well as to stones: have also received it from *Sandwich* in *Kent*.

2.
LÆVIS.

Chiton Lævis. *Gmel. Syst.* p. 3206. 27.

Br. Zool. t. 36. f. 3.

Turt. Lin. iv. p. 165.

C. with eight smooth valves, or very faintly striated transversely: back elevated: valves beaked; margin broad, finely reticulated, oblong; length half an inch, breadth a quarter.

This seems to be the *C. lævis* of Mr. PENNANT, who says it inhabits the shores of *Loch Broom*, in *West Ross-shire*.

shire. It is usually of a fine deep rufous-brown; sometimes mottled with yellowish-white, with a small line of the same along the back; but this is not a permanent character, as it should seem to be by Mr. PENNANT's description.

We have frequently found it with the preceding species in *Salcomb bay*, from which it is principally distinguished by not being so broad; in being smooth, and the margin being reticulated.

3.

C. with seven carinated valves, strongly beaked; the *SEPTEMVALVIS*. five middle ones divided transversely from the anterior base to the beak, the hinder compartment very fine shagreen, the other very smooth, or faintly striated transversely: the extreme valve at each end rufous-brown, the rest generally dark cinereous; beaks frequently rufous; margin moderately broad, and faintly reticulated: shape of the last described: length half an inch. Found in *Salcomb bay*, but rare.

4.

Chiton Cinereus. *Lin. Syst.* p. 1107.—*Gmel. Syst.* p. 3204. *CINEREUS.*
Pult. Cat. Dorset. p. 25.
Turt. Lin. iv. p. 163.

C. with eight valves nearly smooth, compressed, oval, carinated: the valves projecting into a beak on the back,

B 2

and

and reflected a little at the posterior angle at the base: margin moderately broad, edge slightly ciliated: colour cinereous: length a quarter of an inch.

Found rarely in *Salcomb bay*, in *Devonshire*, on stones and old shells, like the preceding.

Doct^r PULTENEY says on rocks, and on oysters at *Weymouth*, and from *Poole*.

5.
ALBUS.

Chiton Albus. *Lin. Syst.* p. 1107.—*Gmel. Syst.* p. 3204.
Chem. Conch. viii. t. 96. f. 817.
Pult. Cat. Dorset. p. 25.
Turt. Lin. iv. p. 162.

C. with eight smooth valves, white, oval, not carinated: first valve notched on the hinder edge. Smaller than the *C. cinereus*. Doct^r PULTENEY says upon oyster shells from *Poole*: and on other shells, but less common: also on the *Ulva intestina* and *latissima*.

6.
CRINITUS.

Chiton Crinitus. *Gmel. Syst.* p. 3206.
Br. Zool. t. 36. f. 1.
Turt. Lin. iv. p. 161.

C. with seven valves, thick set with short hairs: five-eighths of an inch long.

Such

Such is Mr. PENNANT's description, who says it inhabits the sea near *Aberdeen*. Mr. BOYS informed us he found it at *Sandwich*.



7.

Chiton Fascicularis. *Lin Syst.* p. 1106.—*Gmel. Syst.* p. 3202. FASCICULARIS.

Chem. Conch. x. t. 173. f. 1688.

Muller. No. 3017.

Pult. Cat. Dorset. p. 25.

Turt. Lin. iv. p. 162.

C. with eight valves, apparently smooth, but when examined with a glass, will be found to be rough like shagreen, except on the elevated dorsal ridge; margin furrounded with tufts of whitish hair, one at the junction of each valve, and two in the front, making eighteen in number; colour brown, or dark cinereous: length five-eighths of an inch, breadth rather more than two-eighths.

Doct^r PULTENEY observes, this shell is not uncommon on oysters from *Poole*. We have found it in considerable abundance in *Salcomb bay* in *Devonshire*, with all the other species except the *albus* and *crinitus*, and is by far the most common; like the rest it adheres to oysters and other shells, as well as to stones; and with them inhabits the deep, so that it is only to be obtained by dredging. It is also found at *Sandwich* in *Kent*, where it seems to be not uncommon; as among a parcel of these shells we received from Mr. BOYS, the greater part were of this species. On the coast of *Barbary* it is of a much superior size, not unfrequently above an inch long.

GEN.

 GEN. II.

BALANUS.

Animal a TRITON.

SHELL, of many erect unequal valves, affixed by a broad base, or sessile.

1.

COMMUNIS.

Lepas Balanus. *Lin. Syst.* p. 1107.—*Gmel. Syst.* p. 3207.

Turt. Lin. iv. p. 165.

Lister. Conch. t. 443. f. 286.—*Don. Br.*

Shells. i. t. 30. f. 1. *Br. Zool.* t. 37. f. 4.

Lepas Cornubienfis. *Br. Zool.* t. 37. f. 6. var.

Balanus Porcatus. *Da. Costa.* p. 249.

Balanus Communis. *Pult. Cat. Dorset.* p. 25.

B. with a strong rugged shell, of a cinereous-brown colour; compartments unequal and frequently indistinct, composed of irregular longitudinal striæ or ridges: of a conic shape, detached shells frequently perfectly round at the base, and regularly sloping upwards: the aperture not large in proportion; *operculum* of four valves transversely striated, with a longitudinal furrow on the two longest. Diameter at the base, sometimes an inch, height nearly three quarters.

This

This species is not uncommon on many parts of our rocky coasts, to which it adheres so strongly as to render it difficult to separate whole: most commonly in clusters, by which they are distorted into various shapes.



2.

Lepas Balanoides. *Lin. Syst.* p. 1108.—*Gmel. Syst.* p. 3207. BALANOIDES.

Turt. Lin. iv. 166.—*Br. Zool.* t. 37. f. 5.

Don. Br. Shells. i. t. 36. f. 2. 3.

Balanus Vulgaris. *Da. Costa.* p. 248. t. 17. f. 7.

Lister. Conch. t. 444. f. 287.

Id. Angl. t. 5. f. 41.

Pult. Cat. Dorset. p. 25.

B. with a sub-conic, and sometimes much depressed shell, usually with six compartments divided by a deep longitudinal furrow, smooth, white, frequently deeply fulcated at the base; the posterior compartments the largest: aperture larger in proportion than in the last species: *operculum* of four valves; the two upper slightly striated transversely, the others smooth. Diameter at the base, a quarter, rarely half an inch.

This is by far the most plentiful species on all our rocks between high and low water mark, sometimes entirely covering them: it is also found attached to wood, shells, and crustaceous animals.

Balanus

3.

PUNCTATUS.

TAB. 1. F. 5.

Balanus Punctatus. *Pult. Cat. Dorset.* p. 25.

B. with a very rugged brown shell; compartments indistinct; frequently punctured; operculum of four valves, the upper one with a few longitudinal ridges or striæ; the edges of the superior and inferior valves closely united at the top, indented or notched, and lock into each other: these are often punctated like a thimble: the base spreads a very little, and is not much broader than it is high, which does not exceed a quarter of an inch, and usually less. It is a very common species on the South coast of *Devonshire*, covering whole rocks near high water mark; and on the *Patella Vulgata* closely clustered together. This has probably been confounded with the preceding species, but is readily distinguished by its dull brown colour, and rugose appearance, and especially by the *operculum*, which is so essentially different.

A variety considerably more elevated, cylindric, and with the aperture as large as the base is sometimes met with; this has the valves of the operculum more punctated.

The figure is magnified; that of the natural size was accidentally omitted.

4.

RUGOSUS.

Balanus Rugosus. *Pult. Cat. Dorset.* p. 25.*Chem. Conch.* viii. t. 97. f. 824.

B. with a sub-cylindric shell, usually divided into six compartments by furrows which become broad towards the

the top, where the shell spreads into angulated points, and is frequently as wide as at the base: the compartments are irregular, those on the posterior side broadest; these are sometimes wrinkled or striated longitudinally, others are more smooth, most times white; but a variety is of a purplish red; aperture large, inside margin ridged transversely: *operculum* of four rough valves but not striated, angulated, erect, forming four distinct points a little reflexed. Height from half to three quarters of an inch; diameter at the base usually much less.

A variety of this species with a more extended base, and not so much in height, has frequently been confounded with the *B. Balanoides*: but the breadth of the aperture, angulated margin, and quadrifurcated *operculum* are unerring marks of distinction. We shall here take the opportunity of remarking, that as the greater part of this genus is subject to great variety, and frequently run so much into each other as scarcely to be distinguished by common observation, it is necessary to attend to the *operculum*, which we have hitherto found an unerring guide; at least with respect to the *British* species, which in other respects approach each other in some of their varieties.

For want of that attention to this essential part, so much confusion has arisen, that it is difficult to place the Synonyms to many of this genus.

5.

CLAVATUS.

Balanus Clavatus. *Pult. Cat. Dorset.* p. 25.*Br. Zool.* t. 37. A. 5.Lepas Elongata. *Gmel. Syst.* p. 3213.*Chem. Conch.* viii. t. 98. f. 838.*Ellis. Zooph.* p. 198. t. 15. 7. 8.

B. with a long clavated shell, slender at the base, dilated at the top, and usually cloven into six divisions: the compartments three wide, and three narrow, wrinkled longitudinally, and faintly striated transversely. Length two inches: diameter at the base three-eighths of an inch.

This species we believe is not common on our coast, as we have never been able to procure it alive, or with its *operculum*. Mr. PENNANT has given a figure of it, but suspected it was only a variety of the *Balanoides*.

Doctor PULTENEY says it has been found in the sea at *Weymouth*, in deep dredging. It is therefore probably a *pelagic* species. This gentleman also informs us, that it was first discovered by SIR JOSEPH BANKS, who brought it from *Newfoundland*: and that in *Iceland* it grows to the length of three inches.

6.

TINTINNABU-
LUM.Lepas Tintinnabulum. *Lin. Syst.* p. 1108.*Gmel. Syst.* p. 3208.*Lister. Conch.* t. 443. f. 285.*Chem. Conch.* viii. t. 97. f. 828 to 831.*Br. Zool.* p. 73. No. 8.*Turt. Lin.* iv. p. 166.

Balanus

Balanus Tintinnabulum. *Da. Costa.* p. 250.

Pult. Cat. Dorset. p. 25.

B. with a strong shell, usually divided into six raised and six depressed compartments, the former running to a point upwards and striated longitudinally; the latter contracting to a point downwards, and transversely striated: aperture nearly as large as the base, angulated; colour purple. Length an inch and a half, or two inches; breadth rather less.

This species though admitted into *British Conchology*, is scarcely to be called an *English* shell. It is the produce of warm climates, and brought to us on the bottoms of ships, where they are frequently seen adhering in clusters: and of course dead shells are some times found on our shores; but we doubt if they ever breed in this climate.



Lepas Costata. *Don. Br. Shells.* i. t. 30. f. 2.

Turt. Lin. iv. p. 167.

7.

COSTATUS.

B. with numerous equidistant ribs diverging from the aperture: shape somewhat conic.

Mr. DONOVAN informs us that this species was found by the late T. ADAMS, Esq. of *Pembroke*, adhering to pieces of broken rock, and is in the possession of the Rev.

T. RACKETT, of *Spetisbury, Dorset.* The figure above quoted is about three-eighths of an inch in diameter at the base, nearly round, and of a light colour.

8.

CONOIDES.

Lepas Conoides. *Don. Br. Shells.* i. t. 30. f. 3.

Turt. Lin. iv. p. 167

B. with smooth valves pointed at the apex: aperture very small. Found by Mr. BRYER, affixed to the *Lepas Anatifera*.

This species, which we presume was found at *Weymouth*, is described as above by Mr. DONOVAN: the figure given is about three-eighths of an inch diameter at the base, of a conic shape; the compartments appear to be six, divided at the top; the three posterior ones larger than the others; and all striated longitudinally, and slightly transversely; giving it a reticulated appearance: colour purplish.

9.

STRIATUS.

Lepas Striata. *Br. Zool.* t. 33. f. 7.

Chem. Conch. viii. t. 98. f. 834.

Walker's Min. Shells. f. 87.

Lepas Verruca. *Gmel. Syst.* p. 3212. 17.

Balanus Intertextus. *Pult. Cat. Dorset.* p. 25.

Lepas Intertexta. *Don. Br. Shells.* i. t. 36. f. 1. *Turt. Lin.* iv. p. 166.

Balanus Striatus. *Da. Costa.* p. 250.

B. with

B. with a compressed white shell, with the compartments strongly ribbed in an oblique direction to each other, and finely striated across the ribs: the margin of the base irregularly serrated: aperture oblique, perfectly closed by an *operculum*, and so obscured that it is difficult to find, except when alive. Diameter a quarter of an inch, rarely so much.

This singular and curious species, was first publicly noticed by Mr. PENNANT as an *English* shell, from the *Portland* Cabinet. Doctor PULTENEY says, he has seen it common on *oysters*, but more frequently on the *Ostrea Opercularis*, both from *Weymouth* and from *Poole*.

We have found it not uncommon upon various shells on the South coast of *Devon*, particularly in *Salcomb bay*; and sometimes in clusters on the roots of *algæ*.

It is not uncommon on the coast of *Sandwich* in *Kent*, from whence we have received it; and Mr. WALKER observes it is found on the roots of *Sea-weeds*; the finest specimens on *lobsters*.



10.

Lepas Diadema. *Lin. Syst.* p. 1198.—*Gmel. Syst.* p. 3208. DIADEMA.
Chem. Conch. viii. t. 99. f. 843. 844.
Lister. Conch t. 445. f. 288.
Gualt. t. 106 f. Q.
Ph. Transf. 1758. pt. 2d. t. 34. f. 1.

Lepas

Lepas Diadema. *Don. Br. Shells.* ii. t. 56. f. 1. 2.

Turt. Lin. iv. p. 166.

Balanus Balæna. *Da. Costa.* p. 251. t. 17. f. 2. 2. 2.

B. with a sub-compressed hemispheric shell, with twelve compartments; six depressed flat and striated transversely; the others which are alternate are prominent, with four, five, or six elevated longitudinal ridges, and transverse striæ; at the top is a deep cavity, funnel-shaped, hexagonal within, at the bottom of which is the aperture: the ribs are also furnished with openings at their summit: the base is concave, furnished with divisions or cells in a radiated manner: in live shells this part is covered with a tough coriaceous membrane. It is usually of a dirty-white colour, an inch in height, and two or three inches diameter towards the base; but commonly not half so large.

The animal figured by Mr. ELLIS in the *Philosophical Transactions* resembles a cluster of small hooded serpents, issuing from the aperture and openings on the top of the ribs.

This species is rarely found in the Southern parts of this Kingdom, but is often met with on the shores of *Scotland* and the islands contiguous.

It appears to inhabit some species of *Whale*, by which it is said that the natives of the Northern parts distinguish one kind from the rest.

Whether this is really distinct from the *Balanus Balænaris*, which is found adhering to the pectoral wrinkles of the *Balæna Boops* is doubtful. GEN.

 GEN. III.

 LEPAS.

Animal a TRITON.

SHELL, with several unequal plates or valves connected by cartilages; affixed by a tubular fleshy peduncle.

1.

- Lepas Anatifera. *Lin. Syst.* p. 1109.—*Gmel. Syst.* p. 3211. ANATIFERA.
Chem. Conch. viii. t. 100. f. 853. 855.
Lister. Conch. t. 439. f. 282.
Br. Zool. t. 38. f. 9.
Pult. Cat. Dorset. p. 26.
Don. Br. Shells. i. t. 7.
Turt. Lin. iv. p. 169.
 Balanus Anatiferus. *Da. Costa.* p. 253. t. 17. f. 3.

L. with a compressed shell of five valves, the two lower ones large and somewhat of a triangular shape, longitudinally wrinkled, and obsoletely striated in a radiated manner from the lower anterior angle; the two superior valves long and tapering downwards to an obtuse point, the upper part angulated on each side, top rounded: these are also

also faintly wrinkled longitudinally, and obsoletely striated from the upper posterior angle in a radiated manner. The dorsal valve is long slender and rounded, smooth down the middle, and fulcated on each side; the cartilages that connect the valves, and the peduncle at the base are usually of a reddish-orange colour. Length an inch and a half, and sometimes more, breadth of the largest part an inch: colour blueish-white, and glossy.

This species is frequently found adhering to the bottom of ships in great quantity, clustered together of all sizes, the smaller ones adhering by short pedicles to the larger. It particularly attaches itself to wood; pieces of timber are not uncommonly thrown upon our shores covered with them: we observed one of *fir* above twenty feet long, drifted on the coast of *Devonshire*, that was completely covered with *Bernacles*.

This is the shell which was formerly supposed to produce the *Bernacle Goose*, a curious account of which may be seen in *Gerarde's Herbal*.

2.

ANSERIFERA.

Lepas Anserifera. *Lin. Syst.* p. 1109.—*Gmel. Syst.* p. 3210.*Chem. Conch.* viii. t. 100. f. 856.*Gualt.* t. 106. f. 2. 3.*Lister. Conch.* t. 440. f. 283.*Turt. Lin.* iv. p. 168.

L. with a compressed shell of five valves, much resembling the preceding species, but is readily distinguished

guished from it by being strongly striated in a radiated manner, the inferior valve from the lower anterior angle, and the superior one from the upper posterior margin; these are crossed by very fine striæ, which give a faint reticulated appearance: the angles of the valves are much more sharp and pointed, and particularly the apex: the dorsal valve is compressed at the sides, and brought to a fine carinated edge, whereas in the other it is rounded, and only sub-carinated down the middle: This is a remarkable character, and sufficient to discriminate the shell if all others were wanting: the superior valves are also much more compressed, which makes the shell extremely thin or flat on the posterior side. Length one inch: breadth not quite three quarters: colour bluish-white.

This species is rarely found with the former; we have taken it from a piece of drifted wood on the south coast of *Devonshire*, from half an inch in length to the size before mentioned; the connecting cartilages and pedicle bright orange-red.



3.

L. with a compressed sub-triangular shell of five valves, *SULCATA*.
the inferior ones wrought with fifteen strong ribs diverg- *TAB. 1. f. 6.*
ing from the lower anterior angle; that which runs along
the front is larger than the rest, and forms a margin; the
two superior valves form a pointed apex, and narrow
downwards to a point, furnished with seven or eight ribs

D

with

with smaller intermediate ones, diverging from the posterior margin; the dorsal valve somewhat compressed, and strongly striated longitudinally, with a smooth sub-carinated edge. Length a quarter of an inch, breadth nearly as much: colour dirty-white: pedicle short, dusky: shape somewhat like the last, but shorter and more triangulated. This new and elegant species we found on *Gorgonia Flabellum* on the *Dorsetshire* coast near *Portland Island*: the few that were on it were detached, not in clusters; some not half as large as that described.

A figure of the natural size was accidentally omitted.



4.
SCALPELLUM.
TAB. 1. f. 4.

Lepas Scalpellum. *Lin. Syst.* p. 1109.—*Gmel. Syst.* p. 3210 11.
Chem. Conch. viii. vig. 17. f. *A.* and *a.*
Lister. Conch. t. 439. f. 281.
Gualt. t. 106. f. *C.*
Ph. Transf. 1758. vol. 2. t. 34. f. 4. (*Ellis.*)
Turt. Lin. iv. p. 168.

L. with thirteen valves of a light brown colour, not polished, but rather rough without any striæ; faintly wrinkled in some parts, and covered with short hairs; those on the dorsal valve set in series or rows transversely: the three lower valves on each side, to which the peduncle is fixed, are very small; the two next larger; the superior one the largest, running a little oblique to the rest, and is pointed at the top: the dorsal valve is compressed,
the

the edge rounded at the base and runs into a sharp process about half way up; from whence it turns in a diagonal line to cover the edge of the two superior valves: the whole shell is much compressed; the anterior and posterior sides are nearly parallel to each other for rather more than half way from the base; the upper part is truncated obliquely to the front; the apex turns a little backward.

The peduncle is large in proportion, cylindric, composed of many annulations of the same colour as the shell; is nearly of the same length, and covered with short hairs.

This species is rarely above five-eighths of an inch long independant of the peduncle; and three-eighths broad. It is a rare shell, and seldom met with on our coast.

We first received it from Mr. BOYS of *Sandwich*, and since found it on a species of *Gorgonia*, to which it seems to be particularly attached. CHEMNITZ mentions the same circumstance. Hitherto it has been only known as a production of the *Norwegian* seas, and even there accounted extremely rare. Ours were taken off *Plymouth* by trawling.

GEN. IV.

PHOLAS.

Animal an ASCIDIA.

SHELL, with two large valves open at each end, with smaller accessory valves or plates at, or near the hinge.

Hinge, folded back, united by a cartilage; tooth single in each valve beneath the hinge, long, incurvated.

1.
DACTYLUS.

Pholas Dactylus. *Lin. Syft.* p. 1110. 20.

Gmel. Syft. p. 3214. 1.—*Turt. Lin.* iv.
p. 172.

Chem. Conch. viii. t. 101. f. 859.

Lister. Conch. t. 433. f. 276.

Id. Anat. t. 19. f. 1. 2.—*Br. Zool.* t. 39. f. 10.

Pholas Muricatus. *Da. Costa.* p. 244. t. 16. f. 2. 2.

Pholas Hians. *Pult. Cat. Dorset.* p. 26.

Borlase Corn. t. 28. f. 31.

P. with a rough shell striated transversely, and slightly longitudinally, or from the hinge; the anterior end strongly

strongly muricated, extending into a beak, forming a large *rictus* or gape.

Hinge reflexed and forms several cells on the back, which are covered with two striated valves connected longitudinally; below the hinge another long plate-like valve affixed to the connecting membrane: teeth, one in each valve projecting inwards; long, curved, flat: colour white. Length an inch and a quarter: breadth sometimes as much as four inches.

This shell has been considered by some as distinct from the *Dactylus* of LINNÆUS: GMELIN however has quoted the figure of CHEMNITZ and LISTER which is evidently this shell.

The *Pholades* are all *Borers*: this is frequently found in hard clay, marl, and wood: the largest we ever saw was on the north shore at *Poole*. It is not uncommon on many parts of our coast from east to west: and we have picked it up of a large size on the sands of *Caermarthenshire*.

At *Salcomb* on the coast of *South Devon*, it is found in great abundance together with the *P. Candidus* and *Parvus* burrowed in the stumps of old trees, which formerly grew there, but now covered with the tide except at very low water. These are taken by the fishermen and used with success for baiting their hooks.

2.

PARVUS.

TAB. 1. f. 7. 8.

Pholas Parvus. *Br. Zool.* t. 4. f. 13.*Da Costa.* p. 247.

P with a rough white shell transversely and longitudinally striated, except at the smaller end; the larger end declines into a kind of beak, where it is muricated: hinge reflex without cells: plate at the back one, connected by a membrane to the valves; no accessory plate below the hinge; teeth, one in each valve, slender, curved, furnished with a knob at their base. Length half an inch; breadth one inch.

This species was originally given by Mr. PENNANT, but has ever since been confounded with the *Dactylus* and *Crispatus*.

From the former it may be readily known by not having any cells on the reflected margin of the hinge; from the latter in not having the longitudinal furrow; and from both by the knob at the base of the tooth.

It is longer in proportion to its breadth than the *Dactylus*, and shorter than the *Crispatus*.

If this should be the shell described in the *British Zoology* of which we can but little doubt, it is unfortunate that the essential characters were omitted, especially as it is stated to be like the *Crispatus* externally, but never found larger than a hazel nut. From this circumstance
probably

probably DA COSTA was led to believe it was no other than the young of that shell.

In this state of uncertainty we are rather inclined to give credit to so able a naturalist, than to add ours as a new species, with a greater probability of its being the same. The *Parvus* seems to be a very local species: is found in great abundance in decayed wood, below the town of *Salcomb* on the coast of *South Devon*, the only place we ever met with it: and where the *Crispatus* is never found, but the *Dactylus* and *Candidus* equally plentiful. The *Pholades* are all slightly connected at the hinge, and rarely found perfect except when alive, as the accessory valves soon separate. In a live state these smaller valves or plates are evident and distinguishing characters.



Pholas Crispata. *Lin. Syst.* p. 1111. 25.

Gmel. Syst. p. 3216. 6.

Chem. Conch. viii. t. 102. f. 872. to 874.

Don. Br. Shells. ii. t. 62.

Pult. Cat. Dorset. p. 27.

Turt. Lin. iv. p. 173.

Pholas Crispatus. *Br. Zool.* t. 40. f. 12.

Pholas Bifrons. *Da. Costa.* p. 242. t. 16. f. 4. 4.

Lister. Conch. t. 436. f. 279. & t. *Anat.* 19. f. 3.

Id. Angl. t. 5. f. 38.

Pholas Parvus. *Don. Br. Shells.* ii. t. 69. young.

6.

CRISPATUS.

P. with a strong, gibbous, opaque shell, sub-oval, obtuse, and very open at both ends: transversely striated; half the

the shell reticulated, and separated from the plain side by a broad furrow down the middle, extending from the *umbo* or beak to the opposite margin: hinge reflex, smooth, forming a cavity or furrow at the anterior end: this end is truncated obliquely to the front margin, which forms a sort of beak or angle at the end next to the hinge.

Inside smooth, glossy; an elevation across the middle caused by the furrow on the outside: tooth long, flat, much curved: colour whitish, or tinged ferruginous. Length sometimes, nearly two inches; breadth above three, but more commonly much less.

This species is found on various parts of our coast, burrowed in clay or lime-stone; but sparingly on the western shores, and those small and dead specimens; indeed we believe it is no where plentiful of a large size.

DONOVAN has figured the young of this species for the *Pholas Parvus*, but has followed DA COSTA in expressing a doubt of its being distinct from the *Crispata*. Had these authors ever seen the true *Parvus* such doubts never could have arisen.

4.
CANDIDUS.

Pholas Candidus. *Lin. Syst.* p. 1111. 23.—*Gmel Syst.* p. 3215. 4.

Chem. Conch. viii. t. 101. f. 861. 862.

Lister. Conch. t. 435. f. 278.—*Id. Ang.* t. 5. f. 39. Pholas

Pholas Candida. *Pult. Cat. Dorset.* p. 26.—*Turt. Lin.* iv.
p. 173.

Pholas Candidus. *Br. Zool.* t. 39. f. 11.

Da Costa. p. 246.

P. with a thin, fragile, semipellucid, oblong, yellowish-white shell, rounded at both ends; striated transversely, crossed by finer striæ in a radiated manner from the *umbo*: a few of the radii at the larger end muricated, or set with short spines: hinge reflected, smooth, forming a *sinus* at the back: accessory valve one at the hinge, none on the connecting membrane below the hinge. Inside smooth, glossy-white: tooth in each valve slender, incurvated, above which on the margin of one valve is an erect tooth-like process. Length three-quarters of an inch; breadth two inches.

This appears to be a very local species on our coasts.

DA COSTA certainly could never have examined a perfect specimen of this shell, or he would not have expressed a doubt of its being a distinct species. If every other character was wanting, the erect tooth-like process is sufficient to discriminate it; but it is also readily distinguished from all the preceding species, by the valves shutting close at the larger end.

LISTER met with it at the mouth of the river *Tees*, but says it is scarce. Doctor PULTENEY speaks of it as a shell of the *Dorsetshire* coast.

E

We

We have only found it alive at *Salcomb* on the south coast of *Devonshire*, where it is sufficiently plentiful in decayed wood at low-water mark, in company with the *Dactylus* and *Parvus*.

3.

STRIATUS.

Pholas Striata. *Lin. Syst.* p. 1111.

Gmel. Syst. p. 3215. 3.—*Turt. Lin.* iv. p. 172.

Chem. Conch. viii. t. 102. f. 864. 866.

Pholas Nanus. *Pult. Cat. Dorset.* p. 27.

Pholas Conoides. *Phil. Trans.* lv. p. 1. t. 1.

P. with a conoid white shell, the larger end strongly reticulated, the rest irregularly striated: at the front margin the lip seems to fold back, and forms a smooth surface on the reticulated part: the plate or shield at the hinge is large, of a sub-oval shape, beneath which is a narrow plate joined to the membrane which connects the valves: in the front is another narrow plate and membrane, which seems to prevent the shell from opening, except at the ends: at the smaller end it gapes considerably, the larger end nearly closed: tooth long, slender, and much curved. Length half an inch, breadth three-quarters.

Whether this species can strictly be said to be *English* may be doubted; it is however not uncommonly found burrowed in the planks at the bottoms of ships, returned from

from the *Mediterranean*, and probably other southern latitudes.

Whether it has bred in our seas and become naturalized, is not ascertained. In a piece of timber now before us, perforated by this and the *Teredo Navalis*, it is remarkable how effectually they destroy the planks of a ship by their conjoint actions: the *Pholas* perforates the wood across the grain, while the *Teredo* insinuates itself with the grain in all directions.

AYM

Da Costa has placed it with the *Mytilus*, which consists chiefly of *Lamna Myx*. Doctor Pulverer has made it a *Pholas*, we propose under the authority of Doctor Solander. *Mytilus* or *ASCIDIA* there ever were sufficient grounds for placing *Pholas* genus. Eggs have been found in the *Pholas* most commonly being at one end. that he has seen several of these shells, but not one without a pair furnished with a strong, thick and and broad tooth not inserted into the opposite valve to retain

Mr. Pallas and Da Costa have placed it with the *Mytilus*, which consists chiefly of *Lamna Myx*. Doctor Pulverer has made it a *Pholas*, we propose under the authority of Doctor Solander. *Mytilus* or *ASCIDIA* there ever were sufficient grounds for placing *Pholas* genus. Eggs have been found in the *Pholas* most commonly being at one end. that he has seen several of these shells, but not one without a pair furnished with a strong, thick and and broad tooth not inserted into the opposite valve to retain

Mr. with a thin, brittle, opaque shell, of a light color, and oval shape, marked with fine concentric lines: the peak is small, but prominent, placed at one end: the valves when

DIV. II.

BIVALVE SHELLS.

GEN. V.

MYA.

Animal an ASCIDIA.

SHELL, most commonly gaping at one end.

Hinge, for the most part furnished with a strong, thick, and broad tooth not inserted into the opposite valve.

1.

PHOLADIA.

Mya Dubia. *Br. Zool.* t. 44. f. 19.—*Turt. Lin.* iv. p. 179.

Chama Parva. *Da. Costa.* p. 234.

Pholas Faba. *Pult. Cat. Dorset.* p. 27.

M. with a thin, brittle, opaque shell, of a light colour, and oval shape, marked with fine concentric striæ: the beak is small, but prominent, placed at one end: the valves, when

when shut, have a large oval gape or opening in front, opposite the hinge. Inside white: hinge furnished with a small plate, or rudiment of a tooth, projecting inwards.

There seems to have been various opinions, with respect to the class in which this shell should be placed.

Mr. PENNANT, who first gave it to the public, met with it in the *Portland* Cabinet; and seemed to be doubtful with regard to the genus in which it ought to be placed, by the trivial name of *Dubia* he affixed to it.

DA COSTA has placed it with his *Chama*, which consists chiefly of *Linnæan Myæ*. Doctor PULTENEY has made it a *Pholas*; we presume under the authority of Doctor SOLANDER. It does not however appear that there ever were sufficient grounds for placing it in the *Pholas* genus. Even Doctor PULTENEY himself remarks, that he has seen several of these shells, but had not seen one with the accessory valves, the essential part of the character of that genus.

Mr. PENNANT and DA COSTA mention its possessing a tooth, or the rudiment of one. This circumstance perhaps has more inclined us to fix it in the *Mya* genus; others may perhaps hereafter remove it to the *Mytilus*; for the small elevation of the hinge is scarcely to be denominated a tooth.

In

In its general habits, it certainly appears very nearly allied to the *Pholades*, but the want of the accessory valves forbids its being placed in that class: though, if we admit of the existence of a tooth, it is the link that connects the *Pholas* and *Mya*. This hitherto seems only to have been found at *Weymouth*, or on the *Dorset* coast, by those who have described it. We have found it not uncommon on the *Devonshire* coast, at *Torbay* and at *Plymouth*, burrowed in detached pieces of lime-stone; but always dead shells, though in good condition. It rarely exceeds three-quarters of an inch in length; and is frequently tinged with rufous-brown.

2.

ARENARIA.

Mya Arenaria. *Lin. Syst.* p. 1112.

Gmel. Syst. p. 3218. 2.

Br. Zool. t. 42. f. 16.

Chem. Conch. vi. t. 1. f. 3. 4.

Turt. Lin. iv. p. 175.—*Don. Br. Shells.* iii. t. 85.

Chama Arenaria. *Da. Costa.* p. 232.

M. with an oval shell, moderately concave, generally of a rugged appearance, but some are more smooth with numerous small concentric striæ; in such the shells are not so thick and strong as in the more rugose variety: the hinge is not very remote from the centre, but nearest the larger end: the *umbo* is rather prominent: one valve furnished with a broad, thick, erect tooth, by which it is joined to the

the other or toothless valve, by the connecting cartilage. Inside white, glossy. This species is a *gaper*, the smaller end is incapable of closing, and reflects outwards, particularly in that valve which has the tooth.

It may be rather considered as a local, but not a scarce shell. DA COSTA mentions having received it from *Kent*, and the *Isle of Wight*. We have received it also from *Kent* and from *Portsmouth*, and have seen it in great abundance in the gravelly parts of the shores of *Southampton* river, at low water, buried at the depth of six or seven inches, with the gaping end upwards; and so strongly wedged in by the shingle, that it is difficult to get them up without a pointed iron instrument.

In this situation the shells are always very rugged, but those which are found in sand are more smooth and regularly grown, and covered with a brown epidermis, which being removed the shell is white: those of a rusty or blackish colour are only stained by the mud or ochraceous clay. The fishermen about *Southampton* call them *old-maids*, and sometimes collect them for food. They are discovered by a small hole on the surface, through which they eject a quantity of water if pressed. The common size is about three inches wide; sometimes though rarely above four; and two inches and a half long from hinge to margin.

Mya

3.

TRUNCATA.

- Mya Truncata. *Lin. Syst.* p. 1112.
Gmel. Syst. p. 3217. 1.
Br. Zool. t. 41. f. 14.—*Turt. Lin.* iv.
 p. 174.
Pult. Cat. Dorset. p. 27.—*Don. Br. Shells.*
 iii. t. 92.
Lister. Conch. t. 428. f. 269.—*Id. Angl.*
 t. 5. f. 36.
Chem. Conch. vi. t. 1. f. 1. 2.
 Chama Truncata. *Da Costa.* p. 233. t. 16. f. 1.

M. with a sub-oval shell, truncated at the smaller end, where it gapes considerably more than the *Arenaria*: it is wrought with concentric wrinkles, covered with a yellow tough epidermis, extending half an inch or more beyond the open end, like a thick membrane, through which the animal extends itself: the valves are very concave and reflect at the smaller end; the tooth like the preceding species, very broad and erect. Inside white.

This species is found lodged under gravel near low-water mark, on some of our coasts; but dead shells are more frequently found with the epidermis worn off: in that state they are nearly white, or tinged with yellow. In this country it seems to be extended from *South* to *North*, as it is said to be found in the *Orknies*: we are also informed that in *Greenland* it is the food of man, and other animals.

We have taken it alive on the coast of *Devonshire* measuring two inches and a half in length, and three inches and a half in breadth. In this state the epidermis of the shell joins to the tube or proboscis of the animal, and becomes on that part a tough, thick, dark-coloured, coriaceous skin for its protection: and is greatly wrinkled when contracted.

The animal is capable of extending this tube to the distance of nine or ten inches, and of contracting it to about three, but cannot withdraw it into the shell.



Mya margaritifera. *Lin. Syst.* p. 1112.

Gmel. Syst. p. 3219.

Br. Zool. t. 43. f. 18.

Da. Costa. p. 225. t. 15. f. 3.

Lister. Conch. t. 149. 4.—*Id. Angl. app.*

t. 1. f. 1.—*Shroet. Fluscon.* t. 4. f. 1.

Chem. Conch. vi. t. 1. f. 5.

Turt. Lin. iv. p. 176.

4.

MARGARITIFERA.

M. with a thick, strong, ovate-oblong shell, somewhat indented or arcuated opposite the hinge; covered with a black epidermis: rugged and decorticated, particularly about the *umbo*, and frequently perforated with small round holes. Inside of a greenish pearly hue: sometimes of a deep bronze all over, or only in patches on the elevated parts; for the inside is frequently rugged and worn,

F

as

as if the animal was constantly throwing off part of its shell, both externally and internally. Teeth strong; in one valve a single tooth, locking into a bifurcated tooth in the opposite valve. Length two inches and a half, breadth five inches.

Inhabits only the rapid rivers, particularly those of the most mountainous parts, and rocky torrents: not uncommon in the northern parts, and in *Wales*: is also common in the rivers of *Devonshire*, which take their source from the mountains of *Dartmoor*, particularly the *Aun* or *Avon*.

This species has long been famous for producing *pearls*, of a good colour, and of considerable size: and was formerly sought after for that purpose. *Conway* was noted for them: and we are informed by CAMDEN that Sir JOHN HAWKINS had a patent for fishing them in the river *Irt*, in *Cumberland*.

5.
OVALIS.

Mya Ovalis. *Pult. Cat. Dorset.* p. 27.

Mya Pictorum. *Br. Zool.* t. 43. f. 17.

Lister. Conch. t. 146. f. 1.—t. 147. f. 2. 3.

Id. Angl. t. 2. 30.

Da Costa. p. 228 t. 15. f. 4.—*Don. Br. Shells.*

iii. t. 89.—*Shroet. Fluscon.* t. 3. f. 2. 3.

M. with a strong oval shell, of a dusky-green colour, almost black at the smaller end, marked with several concentric

centric wrinkles; *umbo* placed near to the larger end: hinge furnished with one tooth, which locks into a bifurcated tooth in the opposite valve; these are strong and crenated; besides which it has lateral laminae, two in one valve, and one in the other. Inside pearlaceous: Length sometimes near two inches; breadth four. A variety is frequently found of an olive-green, thin and semipellucid, with a few faint radiated striae from the *umbo*: the teeth not near so strong, and the inside resplendent like mother-of-pearl.

This variety has been considered by some as a distinct species: but as they are to be found in all gradations in substance and colour, such must be considered as varieties only. The thin shells, and those which are covered with a green or yellowish epidermis, are most commonly found in *ponds*; whereas the dark and strong shells inhabit *rivers*.

This species has been described and figured by many authors for the *M. Pictorum* of LINNÆUS. Doctor PULTENEY considers it perfectly distinct from that shell, and indeed we cannot but assent to his opinion. It is most probable LINNÆUS was not acquainted with this species; and GMELIN has certainly confounded the two, if we may judge from his synonyms, for he has quoted both LISTER and CHEMNITZ for the *Pictorum*, whereas the former has not given a figure of that shell, but evidently two varieties of this; the latter has figured the true *Pictorum*.

The *ovalis* and *margaritifera* rarely if ever inhabit the same waters; this being found only in the slow rivers, and never in rapid torrents.

The large and thick variety has, we understand, been also separated by some conchologists, and called *Mya solida*; but certainly without foundation; for there is no leading character of distinction; the shape, hinge, teeth, and every other part is the same; and the only difference is in the substance of the shell, a circumstance not alone sufficient to admit of its being a distinct species.

This very strong variety is not uncommon in the *Avon*, that runs through the north of *Wiltshire* and *Somersetshire*, inhabiting the deeper parts of the river.

6.
PICTORUM.

Mya Pictorum. *Lin. Syst.* p. 1112.

Gmel Syst. p. 3218.

Chem. Conch. vi. t. 1. f. 6.

Turt. Lin. iv. p. 175.

Shroet. Fluscon. t. 3. f. 2. t. 3. f. 45. — t. 4. f. 6.

M. with a sub-oval, sub-arcuated shell, moderately thin, of an olive-green colour, sometimes darker at one end, inclining to dusky; wrought with concentric wrinkles: beak or *umbo* placed near to one side; hinge nearly strait, from which it declines alike to both ends, which are equally rounded: the front margin either straight or a little indented. Inside glossy, smooth, pearly; in each valve

valve a single broad crenated tooth, with two lateral laminae in one valve and one in the opposite, locking into each other.

This shell is not very unlike the *ovalis* in the form and structure of the teeth, but very essentially in shape and size. Doctor PULTENEY in his Catalogue of *Dorsetshire* shells, does not consider the *Mya Pictorum* of LINNÆUS as an *English* shell; and at our request favoured us with foreign specimens of what is considered the *Linnæan Pictorum*, which were in every respect like our shell. It seems that Doctor SOLANDER considered this as the true *Pictorum*, but not found in *England*; and named the *ovalis* as a distinct species in the *Portland Museum*. We believe this is a rare, or at least a very local shell in *England*; it is however not uncommon in the river *Kennet*, above the town of *Newbury* in *Berkshire*, where we discovered it, but have never found it in any other place. It is common in *Holland* and many other parts of the Continent, and is generally used by painters for holding their colours, whence the name.

The *ovalis*, which is common in most parts of this kingdom, is used for the same purpose, but greatly exceeds the *Pictorum* in size, which seldom is more than an inch from the hinge to the opposite margin, and an inch and three-quarters wide.

Cardium

INEQUEVALVIS.

Cardium striatum apicibus reflexis. *Walk Min. Shells.* fig. 85.

M. with a sub-triangular, strong, thick, opaque, white shell, frequently covered with a brown epidermis : under-valve deep ; beak central, prominent, standing high above the hinge, furnished with one strong, erect tooth somewhat recurved : Inside smooth, the margin appearing as if ground to an edge.

Upper valve not half the size of the other, smooth, but radiated with a few obsolete striæ from the beak ; at the hinge a notch to receive the tooth of the opposite valve. When closed the margin of the under valve projects considerably.

The singular formation of this shell is not well defined by WALKER, possibly he had never seen the perfect shell : indeed the superior valve might readily be mistaken for a distinct species : he has also erred in making it a *Cardium*.

This shell is by no means uncommon ; but rarely to be obtained alive, or with connected valves ; we have found it on the coasts of *Cornwall* and *Devonshire*, and in a living state dredged from *Salcomb-bay*. Mr. BOYS favoured us with the under-valve from *Sandwich* for WALKER's shell here quoted. Diameter rarely above three-eighths of an inch.

M. with

M. with a sub-pellucid, sub-orbicular shell, of a yellowish-white colour, frequently covered with a brown epidermis; faintly striated transversely, somewhat glossy; margin opposite the hinge nearly straight; sides nearly equal, rounded: hinge central: beak small, pointed, turning to one side: in one valve a single tooth immediately under the beak, locking into a double one in the opposite valve; with a laminated tooth behind the beak in each, somewhat remote. Inside glossy-white: valves shut close. Length rather exceeding three-eighths of an inch; breadth half an inch.

SUBORBICULARIS.

We first discovered this species in hard lime-stone at *Plymouth*, fragments of which were thrown upon the beach perforated in all directions; the entrance of these excavations were much smaller than the shell, so that it must have entered in a younger state; and from which it never could recede. It is sometimes dredged up in *Salcomb-bay*, detached from any other substance, so that it does not seem to be a *Borer* in all situations; perhaps it does not enter any thing but lime-stone, which is not to be found in this last place.

This shell is so much like the *Cardium corneum* in shape, that it might readily be mistaken for a variety, except attention is paid to the hinge, and that this is marine, whereas the other is only found in fresh-water. A variety is highly glossed, with a resplendent pearly hue.

Mya

9.

PUBESCENS.

Mya pubescens. *Pult. Cat. Dorset.* p. 27.*Mya declivis.* *Br. Zool.* No. 15?*Turt. Lin.* iv. p. 175.*Don. Br. Shells.* iii. t. 82.

M. with a very thin brittle, oval, white, shell, truncated at the smaller end: in the larger specimens the outside appears, through a magnifier, somewhat like shagreen, and is very rough to the touch; slightly striated concentrically: behind the cartilage slope one valve turns upwards in a singular manner, and embraces the edge of the other valve: the beak is nearly central, pointed, and turns a little sideways: hinge furnished with one broad tooth-like plate projecting inwards in each valve, to which the connecting cartilage is fixed. Inside white and glossy. In young shells the teeth are not very conspicuous, nor the outside so rough.

This species is not uncommon, of a small size, taken up with sand from *Falmouth Harbour*: sometimes met with on the *Devonshire* coast; one we received from *Plymouth*, taken by dredging was two inches broad, and one inch and a quarter long. Doctor PULTENEY (who says this shell was first noticed by the late *Dutchess Dowager of Portland*) speaks of having seen it two inches and a half long, and three inches and three-quarters wide: dredged up at *Weymouth*.

We

We have reason to believe the full grown shell of this species is the *Mya declivis* of Mr. PENNANT, which he describes to be frequent about the *Hebrides*, and that the fish is eaten by the gentry. The figure given by the same author for *Tellina fragilis* t. 47. f. 26. is so extremely like in shape to the smaller shells of the *M. pubescens*, that we should not have had the least doubt of its being the same, had it not been placed with the *Tellens*; the description too, answers so well to our shell, that we are almost inclined to think the hinge might not have been strictly attended to; and certainly it is not the *T. fragilis* of LINNÆUS.

DoCTOR PULTENEY likens the *T. fragilis* of the *British Zoology* to the *Mya prætenuis*; but that shell is never so much truncated as the figure given in that work; whereas the *M. pubescens* is always of that form.

In the broad tooth of the larger specimens of this shell, is a small process or denticle, which is not observable in younger ones.



Mya prætenuis. Pult. Cat. Dorset. p. 28.

Chama prætenuis. Petiv. Gaz. t. 94. 4.

10.

PRÆTENUIS.

TAB. 1. f. 2.

M. with an oval, thin, brittle, flat shell, of a whitish colour, marked with a few fine concentric striæ; *umbo* very small, pointed, turned to one side, but placed
 G nearly

nearly central; valves not capable of closing at the smaller end. Inside white: a broad tooth in each valve hollowed in the middle, projecting horizontally inwards; the teeth when closed cover each other, and by which they are held together by the connecting cartilage. Length above half an inch, breadth one inch.

We are informed that PETIVER received his shell from *Poole*. It has been called *White Spoon-hinge*, from the tooth resembling the bowl of a spoon. Doctor PULTENEY mentions having found it on the *North* shore near *Brownsea Isle*, and on the shore between *Weymouth* and *Portland*; and remarks with some doubt whether it is not the young of the *pubescens*.

We have no doubt of its being perfectly distinct, and conceive if the Doctor had met with the young of the *pubescens* to have compared, such doubts would never have existed.

This shell is not truncated, is much more flat, and has not that singular flexure of the dexter valve; besides which the tooth is essentially different.

It is not uncommonly dredged from *Falmouth Harbour*, but mostly single valves: is also found on the *South* coast of *Devon*, where we have taken perfect shells.

11.
DISTORTA.
TAB. 1. f. 1.

M. With a sub-pellucid, thin, fragile, white shell, rugged and distorted into various shapes; the valves are convex

convex, mostly of a sub-oval form; but rises high at the *umbo*, where it projects beyond the margin or *commiffure*; the beak is small, placed nearly central, and does not turn to either fide. In the broader specimens the hinge is placed nearer to the larger end; fuch are not in general fo uneven and rugofe as thofe of a more fub-orbicular fhape; but all are more or lefs finuous and indented at the margin. Inſide white: hinge furniſhed with a broad fub-triangular tooth in each valve, hollowed in the middle, projecting horizontally inwards, much like the *pubefcens*: theſe teeth, like the two preceding ſpecies, cover each other when cloſed, and by which the valves are connected with a cartilage. This ſhell, which has ſomething of the habit of the two preceding ſpecies, is much more convex than the *prætenuis*, and the tooth not ſo long and rounded; it differs alſo from the *pubefcens* in the ſhape of the tooth, and in not being truncated; and from both in its rugged and diſtorted ſhape.

We firſt noticed this ſpecies at *Falmouth*, amongſt the ſand dredged from the harbour for manure, and have ſince found it lodged in hard lime-ſtone at *Plymouth*, into which it had bored like the *Pholas*; probably the occaſion of its diſtorted growth. It is alſo found on other parts of the coaſt of *South Devon*, but not plentiful.

The largeſt ſpecimen we have met with is not above three-quarters of an inch long and an inch wide; others are as long as they are broad. This and the two pre-

ceding species though perhaps not strictly belonging to the *Mya* genus, cannot be placed with more advantage in any other of the *Linnæan* genera. Doctor PULTENEY informs us, that had Doctor SOLANDER lived to finish his systematic description of the *Portland* Cabinet, it was his intention to have constituted a new genus, in which the *Mya pubescens* and *prætenuis* together with the *Solen bullatus* and other shells in that Cabinet, were to have been included.

Had such a new genus been formed, this species would doubtless have been placed in it; but we did not think ourselves warranted to make such an addition in a work professedly local, for the sake of one or two species.

12.

BIDENTATA.

M. with a sub-oval, thin, compressed, dirty-white shell, destitute of striæ or markings of any kind, but not glossy: most times covered with extraneous matter that gives it a roughish appearance: *umbo* small, placed near to one end, a little reclined.

Inside smooth without any tongue or *cicatrix*: hinge with two broad erect laminated teeth in one valve, none in the other; these are placed each standing obliquely outwards from the beak, and not very close together; and between them immediately under the beak is a slight cavity for the connecting cartilage.

Length one eighth of an inch, rather more in breadth.

We

We have seen this shell not uncommon, burrowed in old thick oyster shells from *Salcomb bay*, and have reason to believe it to be partly the cause of those small round perforations so frequently observed on that shell.

The hinge of this species does not strictly belong to any one of the present genera in conchology ; the teeth though large, and stand very high in proportion, have not the appearance of what are usually termed *primary* ; they are broad, flat, more than usually distant for central teeth, and equally diverge. The opposite valve is destitute of either *primary* or lateral teeth and has only a slight cavity under the beak.

Whether this shell grows to a larger size remains to be discovered : those we have found are commonly less than above described. That it is perfectly distinct from any thing we are acquainted with there is no doubt ; and as it seems more nearly allied to the *Mya* genus than to any other, it is there placed for the present.

GEN.

 GEN. VI.

 SOLEN.

Animal an ASCIDIA.

SHELL oblong, open at both ends.

Hinge furnished with a reflex subulated tooth, often double, not inserted into any groove in the opposite valve.

1.
SILIQUA.

Solen Siliqua. *Lin. Syst.* p. 1114.—*Gmel. Syst.* p. 3223. 2.

Br. Zool. t. 45. f. 20.

Da. Costa. p. 235. t. 17. f. 5.

Pult. Cat. Dorset. p. 28.

Lister. Conch. t. 409. f. 255.

Id. Angl. t. 5. f. 37.

Chem. Conch. vi. t. 4. f. 29.

Gualt. test. t. 95. C.

Don. Br. Shells. ii. t. 46.

Turt. Lin. iv. p. 180.

S. with a strait sub-cylindric shell, truncated at one end, a little rounded at the other; colour olivaceous-brown

brown; striated transversely, each stria turning longitudinally across the shell; towards the back a diagonal line from the hinge to the opposite end, that marks the turn of the longitudinal striæ; beneath the epidermis the shell is cinereous and white, with streaks of a purplish hue: hinge situate at one end: teeth in one valve single, with a remote lateral lamina; in the other valve two, with a lateral inclined tooth, corresponding with the opposite laminae. Length from hinge to margin an inch; breadth eight inches.

This shell is common on most of our sandy shores, found buried to the depth of a foot or more near low water-mark; it frequently elevates one end a little above the surface, and protrudes its body in search of food; upon being disturbed it suddenly recedes. This place is known by a small depression on the surface. In many places it is sought after for food, by the common people.



2.

S. with a stait sub-cylindric shell, in every respect like *NOVACULA*. the *Siliqua* except in the hinge, in which it is essentially different, being furnished with one strong blunt curved tooth in each valve at one end, destitute of lateral laminae: these teeth turn contrary ways, and when closed clasp or hook into each other. This species may possibly have been confounded with the foregoing from its external similitude, for we do not find it noticed by any conchologist.

chologist. It is found on the sandy shores of *Caermarthenshire*, near *Laugharne*, together with the *Siliqua* of a large size. We have taken it full an inch long, and eight inches broad, but is extremely rare.

3.
ENSIS.

Solen Ensis. *Lin. Syst.* p. 1114.—*Gmel. Syst.* p. 3224. 3.
Br. Zool. t. 45. f. 22.
Pult. Cat. Dorset. p. 28.
Da. Costa. p. 237.
Chem. Conch. vi. t. 4. f. 30.
Favan. t. 55. A. 3.
Lister Conch. t. 411. f. 257.
Don. Br. Shells. ii. t. 50.—*Turt. Lin.* iv. p. 180.

S. with a sub-cylindric arcuated shell, striated and coloured like the *Siliqua*: hinge at one end; a single tooth and a lateral lamina in one valve; which lock into two teeth and double laminæ in the opposite valve.

This species is not uncommon upon many of our shores; is readily distinguished from the *Siliqua* which is invariably strait; whereas this is always more or less arcuated, but most so in younger shells. It rarely exceeds three-quarters of an inch in length, and five inches in breadth.

4.
VAGINA.

Solen Vagina. *Gmel. Syst.* p. 3223. 1.
Br. Zool. t. 46. f. 21.
Chem. Conch. vi. t. 4. f. 26. to 28.
Favan. t. 55. B. 1.
Turt. Lin. iv. p. 180.

Solen marginatus. *Pult. Cat. Dorset.* p. 28.

S. with

S. with a straight cylindric shell, rather truncated at both ends; that end next the hinge a little reflected; striated transversely, each stria turning longitudinally across the shell, but not marked with a diagonal line: hinge close to one end, furnished with a single small compressed tooth in each valve, which lie by the side of each other when closed: no lateral laminae: colour orange-yellow. Length about three-quarters of an inch, and rarely more than four inches broad.

This seems to be rather a scarce species; at least we have never met with it but on the sandy shores of *Caermarthenshire* near *Laugharne*. Mr. PENNANT says it inhabits *Red Wharf, Anglesea*. Doctor PULTENEY mentions it being dredged up at *Weymouth*, but rare.



Solen pellucidus. Br. Zool. t. 46. f. 23.

Turt. Lin. iv. p. 181.

5.

PELLUCIDUS.

S. with an oblong sub-arcuated, pellucid, fragile shell; compressed, and rounded at each end, covered with a greenish epidermis: hinge near to one end, furnished with a single small tooth in one valve, locking into two in the opposite, with a lateral process in each. Length a quarter of an inch: breadth little more than an inch.

This shell which was first noticed by Mr. PENNANT, was totally neglected by DA COSTA, who might perhaps

H

never

never have seen it, and considered it as a variety of the *Ensis* in a young state. The *pellucidus* is not much more than one third as broad as that shell in proportion to its length; it also differs in the hinge. We have found it in *Cornwall*, and have received it from *Sandwich*. Mr. PENNANT found it to inhabit *Red Wharf, Anglesea*. It is however a rare species.

6.

LEGUMEN.

Solen Legumen. *Lin. Syst.* p. 1114.—*Gmel. Syst.* p. 3224. 4.

Br. Zool. t. 46. f. 24.

Lister Conch. t. 420. f. 264.

Chem. Conch. vi. t. 5. f. 32. to 34.

Don. Br. Shells. ii. t. 53.—*Da Costa.* p. 238.

Gault. t. 91. f. A.—*Turt. Lin.* iv. p. 181.

S. with a straight, oblong, sub-oval shell, thin and subpellucid; colour white, but mostly covered with a yellowish epidermis, and wrought with fine concentric striæ: hinge near the middle, furnished with two small teeth in one valve, receiving a single one from the opposite; with a hook-like process in each valve, pointing towards the cartilage. This species is mentioned as rare, or at least very local by several authors, and not to exceed two inches and a half in breadth. We have found it on the coast of *Caermarthenshire*, nearly an inch long, and four inches broad; and very little inferior in size in *Biddeford bay*, on the coast of north *Devon*, where it is in great abundance, and by far the most common species.

Mr. PEN-

Mr. PENNANT mentions it from *Red Wharf, Anglesea*;
DA COSTA from the shore near *Christchurch, Hampshire*.



Solen fragilis. *Pult. Cat. Dorset.* p. 28.

7.
FRAGILIS.

S. with a very thin, pellucid, fragile, glossy, white shell, somewhat depressed in the middle from the hinge to the opposite margin; oblong, rounded at both ends; hinge near the middle, furnished with a small subulate tooth in one valve; in the other two, one of which is subulate, the other broad, both recurved.

This is a very rare species; we received it from the Rev. Mr. RACKETT, and believe it was found on the *Dorset* coast. This specimen is nearly an inch and a half broad, and half an inch long.

Doctor PULTENEY speaks of it as belonging to the *Portland* cabinet, named by Doctor SOLANDER. We confess this shell has hitherto escaped our notice on the various parts of the coast we have examined, but can have no doubt of its being *English*, as the Doctor found it himself on *Studland* beach. This author mentions that it is marked with one or two reddish stripes, in an oblique direction from the hinge towards the margin; our specimen has no such markings.

ANTIQUATUS.

Solen antiquatus. *Pult. Cat. Dorset.* p. 28.

Solen Cultellus. *Br. Zool.* t. 46. f. 25.

Chama Solen. *Da Costa.* p. 238.

Lister Conch. t. 421. f. 265.

S. with a thin, sub-pellucid, white shell, moderately glossy, wrought with fine concentric striae; recent shells are covered with a yellowish-brown epidermis: the ends are rounded and gaping: hinge placed near the centre: teeth, a single one in one valve, locking in between two in the opposite; these are erect, and project beyond the *commiffure* or margin, and stand rather oblique. Inside smooth glossy white. Length near an inch, breadth two inches:

Mr. PENNANT, who first gave this species as a *British* shell, has erred with respect to the number of teeth, giving only a single tooth in each valve. DA COSTA, and Doctor PULTENEY have fallen into the same error. It should seem from this circumstance, that the teeth are easily destroyed, and indeed we have found it to be the case, but by the assistance of a glass readily discover the fractured part. We have received it perfect from *Looe* in *Cornwall*; but more frequently with the loss of one or two teeth. Mr. PENNANT speaks of its being found at *Weymouth*. DA COSTA received it from *Dorsetshire* and *Hampshire*. It may however be ranked among our scarcer shells.

As this species is certainly not the *Cultellus* of LINNÆUS, we have followed Doctor PULTENEY in the name
here

here prefixed, and by which it was called by Doctor SOLANDER in the *Portland* cabinet.



Solen minutus *Lin. Syst.* p. 1115. 42.

Gmel. Syst. p. 3226. 11.

Chem. Conch. vi. t. 6. f. 51. 52.

Lister Conch. t. 426. f. 267 ?

Turt. Lin. iv. p. 182.

9.

MINUTUS.

TAB. 1. f. 4.

S. with an opaque whitish shell, rugose or wrinkled transversely; sub-oval, truncated at one end close to the hinge: valves generally dissimilar, each furnished with two rows of concave spines running from the *umbo*; one along the upper or hinge side; the other in a diagonal direction the whole length of the shell. The under valve projects a little over the other, except at the truncated end close to the hinge. Length a quarter of an inch; breadth half an inch.

This very rare species, never before noticed as *British*, we found burrowed in hard lime-stone at *Plymouth*, and can therefore with certainty add it to the list of *English* shells. It is a northern species, has been found to inhabit *Coral* rocks in *Norway* and *Greenland*.

LINNÆUS makes it to be the size of a cucumber seed; some we found were not so large, but one in particular far exceeded that size, the figure of which is given.

Solen

VESPERTINUS.

Solen vespertinus. *Gmel. Syst.* p. 3228. 20.

Chem. Conch. vi. t. 7. f. 59. 60.

Tellina depressa. *Br. Zool.* t. 47. f. 27.—*Turt. Lin.* iv. p. 186.

Tellina variabilis. *Pult. Cat. Dorset.* p. 29.

Don. Br. Shells. ii. t. 41. f. 2.

Turt. Lin. iv. p. 188.—*Favan.* t. 49. D. 1. 2.

S. with an ovate-oblong, depressed shell, moderately thick; white, or flesh-colour, marked with concentric striae, and radiated with carnation from the *umbo* in all directions to the margin; beak nearly central, small; teeth erect, two in one valve, one in the other; with a strong projecting lamina in each, to which the connecting cartilage is fixed. Inside smooth, glossy; margin plain. In young shells the colours are much stronger: some are quite purple, others pale pink or orange, more or less rayed, frequently with one or two stronger rays at the *umbo*; and sometimes the interior margin is prettily streaked. Full grown shells are an inch and a quarter long; and near two inches and a half wide.

DOCTOR PULTENEY mentions this species to be found on the *Dorset* coast at *Poole* and *Weymouth*. It seems to have been named *Tellina variabilis* in the *Portland Cabinet* by DOCTOR SOLANDER; and the above author states he has some reason to believe, that DOCTOR SOLANDER intended to remove it from the *Tellens*.

We have found this shell at *Falmouth* in *Cornwall*; and not uncommon of a small size at *Kingsbridge* in *Devonshire*, and other parts of that coast: but live specimens are only taken by dredging.

GEN.

GEN. VII.

TELLINA.

Animal a TETHYS.

SHELL, generally flogging, or somewhat curved on one side.

Hinge most commonly with three teeth: the lateral teeth in one valve flat or nearly obsolete.

Tellina fervensis. *Gmel. Syst.* p. 3235. 31.

Turt. Lin. iv. p. 191.

1.
FERVENSIS.

Tellina ferroensis. *Chem. Conch.* vi. t. 10. f. 91.

Pult. Cat. Dorset. p. 29.

Tellina incarnata. *Br. Zool.* t. 47. f. 31.

Tellina radiata. *Da. Costa.* p. 209. t. 14. f. 1.

Lister. Conch. t. 394 f. 241.

Petro. Gaz. t. 94. t. 9.

Tellina trifasciata. *Don. Br. Shells.* ii. t. 60.

T. with a flat, oblong-ovate shell, three-quarters of an inch long, and an inch and a half broad, finely striated trans-

transversely ; and elegantly radiated with red and white : *umbo* very small, placed nearly central : teeth two in each valve, no lateral ones : from the *umbo* an oblique elevated ridge runs to one end, where it forms an angle, and renders all the striae at that part angulated and more rugose. Recent shells are frequently covered with a thin yellowish epidermis. Inside white, or more frequently of a rosy hue, smooth and glossy : margin plain. This does not appear to be a plentiful species. It is sparingly found at *Poole* and *Weymouth* in *Dorsetshire* : DA COSTA says at *Scarborough* in *Yorkshire*. We have found it in *Cornwall*, particularly at *Falmouth* dredged from the harbour ; and on several parts of the coast of *South Devon*.

Certainly not the *trifasciata* of GMELIN.

2.

SQUALIDA.

Tellina squalida. Pult. Cat. Dorset. p. 29.

Telina depressa. Gmel. Syst. p. 3238. 55?

Gualt. 88. L. M.

T. with a thin, flat, sub-oval shell, faintly striated concentrically ; the cartilage end running into a beak : *umbo* small, central ; teeth two in one valve, in the other three, one of which is a little remote, laminated at the base, sharp at the point : the small end of one valve reflects a little outwards and forms a depression on the surface ; the other turns inwards to correspond : colour pale orange-yellow, sometimes almost white. Recent shells are frequently covered with a thin brown epidermis ; beneath

neath which it is glossy. Inside sometimes yellow, in others white; margin remarkably sharp. Length an inch; breadth an inch and three-quarters. Dr. PULTENEY says it is found on the north shore at *Poole*, and at *Weymouth* sparingly.

We have found it in *Cornwall* and on several parts of the south coast of *Devon*,



Tellina læta. *Pult. Cat. Dorset.* p. 29.

3.
LÆTA.

Tellina punicea. *Gmel. Syft.* p. 3239.—*Turt. Lin.* iv. p. 194.

Born. Mus. t. 2. f. 8.

Chem. Conch. x. t. 170. f. 1654. 55.

T. with an ovate-oblong, flat, and moderately strong shell, marked with strong, regular, concentric striae: equivalve, and nearly equilateral: *umbo* small, pointed; hinge furnished with three teeth; the outer one on the anterior side bifid, the other exterior one broad, more distant, standing obliquely transverse, and is a sort of medium between a primary and a lateral tooth; in each valve one lateral laminated tooth very remote: margin sharp.

English specimens are usually of a plain yellowish-white, without any of the coloured markings observed in exotics, which are rose or carnation, and frequently with lighter and darker shades in concentric bands. In size

also ours are inferior to foreign ones, rarely exceeding three quarters of an inch in length, and an inch and three-eighths in breadth.

This species bears some resemblance to the *T. squalida*, but is not so pointed at the smaller end; it differs also in the teeth, and strong defined striae.

We were first indebted to our late worthy friend Doctor PULTENEY for a knowledge of this species as an *English* shell, who informed us it was found on the sandy beaches in various parts of the *Dorsetshire* coast; and we have since been favoured with a specimen from Mr. BRYER, who assures us he has more than once picked it up on the sands between *Weymouth* and *Portland*.

4.

DONACINA.

Tellina Donacina. *Lin. Syst.* p. 1118.—*Gmel. Syst.* p. 3234. 26.

Pult. Cat. Dorset. p. 29.—*Turt. Lin.* iv. p. 190.

Gualt. t. 88. N?

Chem. Conch. vi. t. 12. f. 119?

Tellina trifasciata. *Br. Zool.* No. 33?

T. with a thin, sub-oval, compressed, semi-pellucid shell, faintly marked with concentric striae, of a yellowish colour, prettily radiated with red: these rays in some are broken, and make the shell appear spotted, or zoned in belts parallel to the margin: *umbo* small, placed nearest to

to one end; the cartilage end is short and much sloped from the hinge, so as to have a sub-truncated appearance, like the genus *Donax*: the hinge is furnished with two teeth in one valve; that behind the beak extends into a lateral lamina; a single tooth in the other valve. Inside smooth, glossy, yellow, rayed like the external part but more faint. Some specimens are almost white, but rarely without a red mark at the *umbo*, at which part, and on the margin of the umbonal regions, the colour is strongest in all. Length rarely more than half an inch, breadth three-quarters of an inch.

We have found this elegant species in *Falmouth* harbour; and in *Salcomb* bay, in *Devonshire*: have also received it from our worthy friend and able conchologist Mr. Boys of *Sandwich*, on the shores of which place it is not uncommon. Doctor PULTENEY speaks of its being found at *Weymouth* sparingly. Mr. PENNANT, who probably intended this for his *trifasciata*, has been mistaken in quoting that shell of LINNÆUS: we believe that species has never been found in *England*.

Tellina tenuis. *Da Costa*. p. 210.

Don. Br. Shells. i. t. 19. 3 lower figures.

Tellina planata. *Br. Zool*. t. 48. f. 29.—*Turt. Lin*. iv. p. 188.

Tellina polita. *Pult. Cat. Dorset*. p. 29.

Lister Conch. t. 405. f. 250. 251.

Chem. Conch. vi. t. 11. f. 101.

Gualt. 77. M.

5.

TENUIS.

T. with a thin, brittle, flat, sub-pellucid, sub-oval, glossy shell, with a few fine concentric striæ; *umbo* small, placed nearly central; the cartilage end somewhat pointed: colour various; white, yellow, carnation, of all shades, more or less zoned with a lighter colour. Length half an inch, breadth three-quarters.

This species is plentiful on most of our sandy shores. It has been considered by Doctor PULTENEY, as well as Doctor SOLANDER to be distinct from the *planata* of LINNÆUS, and which accords with our opinion. DA COSTA had followed Mr. PENNANT in quoting that shell.

The synonyms of GMELIN'S *planata*, certainly do not accord with our shell; and yet it appears somewhat extraordinary that so common a species as this on our shores, should not have been known to those great naturalists.



6.
STRIATA.

Tellina striata. *Gmel. Syst.* p. 3238.—*Turt. Lin.* iv. p. 194.
Chem. Conch. vi. t. 12. f. 117.
Gualt. test. t. 89. C.

T. with a sub-oval, flat, thin, sub-pellucid shell, of a rosy-white colour, darkest towards the beak; somewhat glossy, but marked with very fine concentric striæ: when examined with a lens some minutely fine markings appear, as if it was longitudinally striated; but these are chiefly veins in the body of the shell: *umbo* very small, pointed, not quite central; cartilage-slope indented.

Inside

Inside rosy, white round the margin: teeth two, with strong laminated ones in each valve placed remote, one on each side. Length one inch, breadth five-eighths of an inch.

The shell above described, which appears to be the *T. striata* in a depauperated state, we were favoured with by Mr. BRYER, who found it on the beach between Weymouth and Portland,

CHEMNITZ has given a good figure of nearly the size of ours, and has with doubt called it the *Tellina balaustina* of LINNÆUS, but it is certainly not that shell.

We believe this species has never before been noticed as *British*; but possibly from similitude to the *T. tenuis* it may have been confounded; it is however at once discriminated by the fine regular transverse striæ, and strong lateral teeth on each side. Whereas the *tenuis* has no lateral tooth in one valve, and only one in the other, and that not very remote.

Tellina Fabula, *Gmel. Syst.* p. 3239. 61.

Turt. Lin. iv. p. 194.

Don. Br. Shells. iii. t. 97.

Tellina discors. *Pult. Cat. Dorset.* p. 54.

7.

FABULA.

T. with a thin, pellucid, compressed, oval, white shell, with usually a tinge of blush, or yellow at the *umbo*; and sometimes the whole shell is of a dull yellow, or yellowish-white,

white, glossed with a pearly hue, as viewed in some particular lights; *umbo* placed nearly central, very small, pointed, and turned a little to one side: the anterior side slopes very considerably to an obtuse point; the opposite end is much larger and perfectly rounded. Inside smooth, glossy-white, with usually more or less tinge of yellow towards the beak: hinge furnished with three teeth in one valve, one of which is lateral, not very remote: in the other valve only two small central teeth.

The remarkable character of this shell is, that the valve possessed of three teeth, or (as Doctor PULTENEY expresses it) the left valve, is finely, regularly, and elegantly striated in a diagonal direction; but not very conspicuous without the assistance of a lens: the other valve is quite plain, except the usual concentric wrinkles, which are faint; this valve turns a little inwards, at the point of the produced end, to correspond with the other which reflects at that part. It is subject to some variety, with respect to the diagonal striæ peculiar to the sinistral valve; in some these run all over, except down the cartilage slope; in others only half way from the smaller end, the larger end being only marked with concentric wrinkles.

This species might readily be confounded with the *T. tenuis*, but is broader in proportion to its length, and more produced and pointed at the smaller end: it is indeed more like the *T. læta* in shape, but greatly inferior in size.

We

We have received it from our worthy friend Mr. Boys of *Sandwich*, where it is not uncommon, of a much superior size to those found on other parts of our coasts; measuring five-eighths in length, and one inch in breadth: whereas those on the *Dorsetshire* coast are still smaller by Doctor PULTENEY's account, who says they have been found on the beach at *Studland*.

It is also found on the south coast of *Wales*, particularly near *Tenby*; but we have never met with it more plentiful than in the sand heaps about *Kingsbridge* in *Devonshire*, which is brought from *Salcomb bay*, for the purpose of manure.

It seems this shell was known to Doctor SOLANDER, by whom it was named *semistriata*.

GMELIN says, it inhabits the *Norwegian*, *Mediterranean*, and *American* seas.



8.

SOLIDULA.

Tellina incarnata. *Lin. Syst.* p. 1118. 58?
Gmel. Syst. p. 3234. 25?
Chem. Conch. vi. t. 12. f. 110.
Lister Conch. t. 405. f. 250. 251.
Id. Angl. t. 4. f. 25.
Turt. Lin. iv. p. 190.

Tellina carnaria. *Br. Zool.* t. 49. f. 32.

Tellina rubra. *Da. Costa.* p. 211. t. 12. f. 4.

Tellina solidula. *Pult. Cat. Dorset.* p. 29.

T. with

T. with a strong, convex shell, of a sub-orbicular shape; the posterior end in some projecting into a short beak somewhat compressed: colour various; white, yellow, red, with intermediate shades; some are plain, others are banded or zoned: *umbo* placed near the middle; hinge furnished with two small teeth in each valve. Length three-quarters of an inch: breadth rather more. The inside of this shell is generally of a stronger and much finer colour than the outside: in some it is of a deep red.

This species is found common on most of the *British* coasts, particularly the sandy bays and inlets, buried four or five inches beneath the surface.

This is certainly not the *carnaria* of LINNÆUS, as was supposed by Mr. PENNANT; but there seems little doubt that it is the *incarnata* of that author; and what rather confirms us in this opinion is, that the synonyms of GMELIN in most instances corresponds with ours.

9.

FAUSTA.

Tellina Remies. *Lin. Syst.* p. 1119. 62?

Gmel. Syst. p. 3239. 66.

Turt. Lin. iv. p. 195.

Chem. Conch vi. t. 12. f. 112. 113.

Lister. Conch. t. 266. f. 102.

Tellina fausta. *Pult. Cat. Dorset.* p. 29.

T. with a sub-orbicular, somewhat compressed, sub-pellucid, white shell, with numerous fine concentric striæ:

striæ: at the posterior end a flexure from the *umbo* to the margin: *umbo* small, nearly central, and not turning to either side: hinge furnished with strong lateral teeth, that on the cartilage side very remote: one of the primary teeth in each valve bifid. Inside smooth, white; margin plain. This shell is nearly as long as it is broad; the sides slope considerably, and occasion the *umbo* to be much produced. In some points of view many fine opaque radii are observed, as it were within the body of the shell.

Doct^r PULTENEY, who first gave this species as *British*, states it to have been found one inch and three-quarters wide, dredged up at *Weymouth*; and adds that small ones are found on the shore.



10.

Venus crassa.

Gmel. Syst. p. 3288. 90.

CRASSA.

Tellina crassa.

Br. Zool. t. 48. f. 28.

Turt Lin. iv. p. 186.

Pectunculus depressior. Da. Costa. p. 194. t. 13. f. 4. right hand.

Tellina rigida

Pult. Cat. Dorset. p. 30.

Lister Conch. t. 299. f. 136.

Favan. t. 48. O.

T. with a strong, thick, sub-orbicular shell, with fine close-set, concentric striæ, interrupted by a few coarser ridges: colour white, with broad and narrow rays of pink, most conspicuous towards the margin: some are plain white, others of a yellowish cast: the valves unequal; the left or lower valve is considerably convex, the

K

other

other much more compressed : *umbo* placed a little to one side, point small, turning forwards : hinge furnished with two teeth in each valve, one of which is bifid : in the deep valve two lateral teeth, one more remote than the other. Inside white, with a tinge of blush colour. Length an inch and a half, breadth two inches ; sometimes larger.

DA COSTA, who gives this shell by the title of *Pectunculus depressior*, says he received it from *Cornwall*. He does not choose to give Mr. PENNANT credit for his *Tellina crassa*, but makes that shell his *Trigonella plana*.

There is no doubt however that PENNANT knew this shell by his description, and speaks of it as distinct from his *Venus borealis*, the *Trigonella plana* of DA COSTA.

DOCTOR PULTENEY notes it as rare at *Weymouth*, and on the north shore at *Poole*.

We have found it plentiful at *Falmouth* and at *Helford* in *Cornwall*, dredged up with the sand from those harbours, but rarely double or live shells.

Also on some parts of the south coast of *Devon*, particularly *Salcomb bay* ; and on the coast of *Caermarthen-shire* in *Wales*.

11.
PROFICUA.

Tellina proficua. Pult. Cat. Dorset. p. 29.

Petiv. Gaz. t. 93. f. 18.

Chem. Conch. vi. t. 12. f. 118.

Tellina

Tellina reticulata. *Lin. Syst.* p. 1119. 63.

Gmel. Syst. p. 3240. 67?

Turt. Lin. iv. p. 195.

T. with a sub-orbicular, sub-diaphanous shell, beset with numerous fine, regular, elevated, concentric ridges; the interstices or furrows crossed with minute striæ, scarce discernable but by the help of a glass: *umbo* small. prominent, placed nearly central, and turns a little to one side: hinge with two small central teeth, and broad laminated lateral ones, projecting above the margin; from the apex a furrow runs on the inner side of the posterior lateral tooth, in which the connecting cartilage is fixed; colour yellowish-white. Inside smooth, glossy yellow: the tongue or *cicatrix* to which the animal is affixed, is broad, and runs into the middle of the shell; margin plain, beneath which is a depressed punctured line, parallel with the outer edge, not very conspicuous in younger shells. Length an inch and a quarter, breadth somewhat more.

We were favoured with this species by the Rev. Mr. RACKETT, who said it was found rarely in *Dorsetshire*. Doctor PULTENEY says on the north shore at *Poole*, and at *Weymouth*.

CHEMNITZ has given a very good figure of this shell, and quoted the *Tellina reticulata* of LINNÆUS. GMELIN has not quoted CHEMNITZ's figure, nor has he given any synonyms.

T. with a convex, sub-orbicular, white shell; beset with numerous fine sharp-edged striae concentrically: extremely rough to the touch like a rasp: *umbo* central, small; apex turned to one side, very little projected; umbonal region much depressed, and marked with an oblong cordiform cavity; a flexure, at the posterior end, running from behind the *umbo* to the front angle, not quite parallel with the cartilage slope: hinge with two small teeth in each valve standing a little oblique, no lateral ones. Inside white, not glossy; a border round the margin more perfectly white than the rest: *cicatrix* narrow, running downward, nearly parallel with the margin.

This species has much the habit of the *proficua*, but is easily distinguished from it externally by the beak being less produced, by the cordiform depression; by the flexure at the posterior end, and by the superior convexity and want of the longitudinal striae. Internally by not having any lateral teeth or groove; in the shape and situation of the tongue or *cicatrix*; and in being invariably white.

With these strong and essential characteristic distinctions, it is hardly possible to conceive these two shells can have been confounded, and yet it is somewhat extraordinary, that a shell so abundant as this is on some of our coasts, should have remained so long unnoticed by those who have written professedly on the subject; for we cannot
affix

affix any synonyms to it. The usual size is about an inch and a half broad, and scarcely the eighth of an inch less in length. We have found it not uncommon on some parts of the coast of *South Devon*; less frequent on the *Caermarthenshire* coast about *Laugharne*, and in great abundance in *Cornwall*, particularly at *Falmouth*, amongst the sand dredged from the harbour for the purpose of manure; by which means it is common in the arable fields about that place.



Tellina bimaculata. *Lin. Syst.* p. 1120. 67.

Gmel. Syst. p. 3240. 71.

Chem Conch. vi. t. 13. f. 127. var. 132. a. b.

Pult. Cat. Dorset. p. 30.

Don. Br. Shells. i. t. 19. f. 1. & two purple figures.

Lister Conch. t. 385. f. 232. — t. 389. f. 228?

Da Costa. p. 213.

Turt. Lin. iv. p. 196.

Tellina variegata. *Gmel. Syst.* p. 3237. 43?

Turt. Lin. iv. p. 192.

13.

BIMACULATA.

T. with a roundish, sub-triangular shell, faintly striated transversely; whitish, with two deep-red or purple spots or streaks at the beak; in some specimens this mark runs more than half way across the shell, but never quite; is much stronger marked within than on the outside: *umbo* nearly central; apex turned a little to one side; primary teeth large; lateral ones strong, remote. Length half an inch; breadth five-eighths. It is sometimes found quite plain,

plain, others are marked with a few interrupted rays of pale purple, which appear like spots in the shape of arrow-heads, besides the broad purple or red streaks; but in some the broad marks are entirely wanting, and the pale-purple spots or rays only visible, which variety is probably the *Tellina variegata* of Gmelin. DA COSTA says he received this species from the shores of *Lancashire* and *Hampshire*. DOCTOR PULTENEY says sparingly on the coast at *Poole* and at *Weymouth*.

We believe it to be amongst the rare shells of *Great Britain*, though we are informed by Mr. BRYER that it is not uncommon on the shore between *Weymouth* and *Portland*; specimens of which he favoured us with, and amongst them a variety entirely white.

14.

LACTEA.

TAB. 2. f. 4.

Tellina lactea. *Lin. Syst.* p. 1119. 65.

Gmel. Syst. p. 3240. 69.

Pult. Cat. Dorset. p. 30.

Chem. Conch vi. t. 13. f. 125 ?

Petiv. Gaz. t. 93. 18.

Gualt. t. 71. D.

Turt. Lin. iv. p. 195.

T. with a thin, orbicular, convex, white shell, with fine concentric irregular wrinkles: *umbo* small, turning to one side, central; hinge furnished with two teeth in one valve, one in the other; these are very small, but what at once distinguishes this shell is a deep sulcus or groove
by

by the side of the teeth in each valve, running from the *umbo*, into which the connecting cartilage is fixed.

This species is not in general glossy in a recent state, and most commonly has the striae interspersed with a few antiquated ridges. Diameter three quarters of an inch. It is found on many parts of the coast, chiefly in bays and inlets. We have met with it sparingly at *Falmouth*, about *Kingsbridge* in *Devonshire*, at *Poole* in *Dorsetshire*, and have received it from *Kent*: but it does not appear to be common any where, and live shells are very rare.



Tellina undata. *Pult. Cat. Dorset*. p. 30?

15.

ROTUNDATA.

TAB. 2. f. 3.

T. with a thin, sub-pellucid, orbicular, white shell, rather convex, wrought with fine (almost obsolete) striae concentrically; moderately glossy: *umbo* small, rather prominent, and turned to one side, placed near the middle: teeth two in each valve, one of which is bifid, the other a little diverging. Inside smooth, glossy white. This species varies a little in shape, in some the front margin is a little straitened, and makes one end rather smaller than the other, in which case the breadth rather exceeds the length. Its largest diameter is seldom more than an inch, and few equal that size.

This shell has much the habit of the *Venus undata*, and may readily be confounded with it; the material distinction

on is, that it is not so much produced at the *umbo*, the hinge not so strong, and in not having three teeth in either valve, the essential character of that shell: nor has it any *cicatrix* within.

We believe Doctor PULTENEY has given this for the *Venus undata* of PENNANT under the title of *Tellina undata*; for we have no doubt if the Doctor had been fortunate enough to have found the *Venus undata*, he would not have placed it in the *Tellen* genus. This last author mentions having found it at *Poole* not uncommon. We have picked it up on the shores of that harbour; also on the coast of *Devonshire*, and at *Falmouth* in *Cornwall*, but rarely live or double valves.

16.

FLEXUOSA.

Venus sinuosa. Don. Br. Shells. t. 42. f. 2.

T. with a thin, pellucid, fragile, convex, sub-orbicular, white shell: from behind the *umbo* to the lower angle of the margin, a sulcus runs parallel with the cartilage slope, and forms a sinus or flexure at the edge. It is finely, but irregularly striated concentrically, and is not very glossy: *umbo* placed central, much produced, and turns to one side at the apex: hinge with an obsolete tooth; along the margin, from behind the *umbo*, a groove in which is fixed the connecting cartilage: Inside smooth, glossy white. Mr. DONOVAN has given a figure of a variety of this shell, as the *Venus sinuosa* of PENNANT, in which

which we conceive he has erred. We believe this singular species was first noticed by us in *Cornwall*, from which place we sent several specimens to Mr. RACKETT, from whose collection DONOVAN states to have taken his figure.

Mr. PENNANT's shell is certainly in obscurity, but it is impossible he could have intended this for it, for independent of the figure given in the *Br. Zoology*, which is not in the least like this shell in size or shape, the placing it as a *Venus* precludes the possibility of their being the same. The *Tellina flexuosa* is indeed sometimes a little indented on the front margin; but this must be considered as an accidental distortion; and in no case is it found without the sulcus and sinus at the posterior end, the strong specific character.

This shell seldom exceeds three-eighths of an inch in diameter, and never arrives at half an inch; and in length is rather more than in breadth.

It is plentiful in the sand of *Falmouth* harbour, and not uncommon on the south coast of *Devonshire*.

Tellina carnaria. *Lin. Syst.* p. 1119.

Gmel. Syst. p. 3240. 70.

Chem. Conch. vi. t. 13. f. 126.

Pult. Cat. Dorset. p. 30.

Lister Conch. t. 339. f. 176.

L

Tellina

17.

CARNARIA.

Tellina carnaria. Don. *Br. Shells.* ii. t. 47.

Turt. Lin. iv. p. 195.

Cardium carneosum. Da Costa. p. 181.

T. with a sub-orbicular, sub-pellucid, flattish shell, with one side rather longer than the other, striated in three directions; the middle area is rather oblique from the *umbo* to the margin; the posterior end in an oblique direction the contrary way; those on the anterior margin transverse and undulated; these striæ are extremely fine as if cut with an engraving tool: colour most commonly white, with a rosy hue; others are pink or carnation, and sometimes banded with paler and darker shades: *umbo* nearly central, small, and turns a little to one side: hinge furnished in one valve with two small teeth, one of which is bifid, in the other one tooth: lateral laminated teeth remote. Inside smooth, glossy, most commonly of a fine rose colour. Length rarely more than three-quarters of an inch; breadth about an eighth of an inch more.

Doct^r PULTENEY says, this elegant species is found sparingly at *Poole* and at *Weymouth*. DA COSTA mentions having received it from *Scarborough* and other places in that county, and likewise in plenty from *Devonshire* and *Cornwall*. We must however remark a suspicion that DA COSTA was misled with respect to this shell being plentiful in the last mentioned counties, as we have examined those coasts frequently, without ever finding even a single valve.

Tellina

Tellina inaequalvis. *Lin. Syst.* p. 1118.

INÆQUALVIS.

Gmel. Syst. p. 3233. 23.

Chem. Conch. vi. t. 11. f. 106. a. b. c. d.

Don. Br. Shells. ii. t. 41. f. 1.

Turt. Lin. iv. p. 189.

T. with an oblong, sub-oval, sub-pellucid, white shell; one valve is nearly flat, the other convex: arcuated along the cartilage slope, and extending into a considerable obtuse beak at that end; the other end rounded: teeth two; no lateral teeth. Length half an inch, breadth one inch.

This species, which is an inhabitant of the *Mediterranean* and *Norwegian* seas, has been given by Mr. DONOVAN as an *English* species; whether it is strictly so is at present to be doubted; though he assures us it is found on the coast of *Guernsey*.

T. testa subovata crassiuscula, decussatim striata, maculis irregularibus. *Adams Min. Shells. Lin. Trans.* iii. p. 252.

This species, which appears not to have been described before, Mr. ADAMS adds the following observation upon.

It is remarkable in this species, that although the figure of the spots in different specimens is quite dissimilar, yet in both the upper and under shell they are perfectly similar.

Found at *Tenbigh*.

L. 2

GEN.

 GEN. VIII.

 CARDIUM.

Animal a TETHYS.

SHELL bivalve, equivalve, convex, for the most part longitudinally ribbed.

Hinge with two teeth near the beak, a larger placed remote on each side, locking into the opposite valve.

1.
EDULE.

Cardium edule. *Lin. Syst.* p. 1124. 90.

Gmel. Syst. p. 3252. 20.

Chem. Conch. vi. t. 19. f. 194.

Lister Conch. t. 334. f. 171.—*Id. Ang.* t. 5. f. 34.

Br. Zool. t. 50. f. 41.—*Turt. Lin.* iv. p. 205.

Pult. Cat. Dorset. p. 30.—*Gualt.* t. 71. F.

Cardium vulgare. *Da Costa.* p. 180. t. 11. f. 1. 1.

C. with about twenty-six antiquated ribs, of a yellowish-white colour; the posterior end a little elongated, and generally of a darker colour. Greatest diameter rarely exceeds an inch and three-quarters.

This

This species is very common in most of our inlets and bays, near the mouths of rivers, where the shore is sandy, buried three or four inches under the surface; where it is taken for the table, and is vulgarly called *Cockle*.

A variety is frequently found quite equilateral, not so large, and perfectly white; such has been considered as a distinct species, but we believe without foundation.



2.

Cardium aculeatum. *Lin. Syst.* p. 1122. 78.

ACULEATUM.

Gmel. Syst. p. 3247. 7.

Chem. Conch. vi. t. 15. f. 155. 157.

Gualt. t. 72. A.—*Br. Zool.* t. 50. f. 37.

Turt. Lin. iv. p. 201.—*Da Costa.* p. 175.

Don. Br. Shells. i. t. 6.—*Favan.* t. 52. A.

Lister Conch. t. 321. f. 158?

Cardium tuberculatum. *Pult. Cat. Dorset.* p. 30?

C. with a very convex shell; the anterior side rounded, the other nearly straight, or as it were truncated, and more elongated at the front marginal angle; ribs about twenty one, with a depressed line down the middle; the round end beset with large compressed tubercles, the other part towards the margin with spines, which increase in length at the opposite side: colour yellowish brown, fasciated and blotched with rufous, and sometimes blackish. Inside glossy purplish, or flesh colour, with flat ribs, the furrows on the outside becoming raised within; interstices between the ribs white.

Mr. PEN-

Mr. PENNANT has given a very good figure of this shell, and says it is found off the *Hebrides* and *Orkneys*.

We have found it on several parts of the coast of *South Devon*, particularly on *Dawlish Warren*, and at *Tor-crofts*. Diameter from the beak to the projecting angle of the longest side four inches, circumference about eleven.

3.

ECHINATUM.

Cardium echinatum. *Lin. Syst.* p. 1122. 79.

Gmel. Syst. p. 3247. 8.

Br. Zool. No. 28.

Da Costa p. 176. t. 14. f. 2.

Pult. Cat. Dorset. p. 30.

Chem. Conch. vi. t. 15. f. 158.

Gualt. t. 72. B.—*Favan.* t. 52. C. 1. 2.

Lister Conch. t. 324. f. 161.

Id. Ang. t. 5. f. 33.—*Turt. Lin.* iv. p. 201.

C. with a very convex shell, having about eighteen ribs furnished with numerous, close-set, convex spines; colour rusty-orange yellow.

This species differs from the *aculeatum* in being more round, the ribs more raised, which with the furrows are more wrinkled; the spines are more numerous and contiguous, but not so long; the shell is stronger, the teeth larger; and in size rarely exceeds two inches and a half in diameter. Inside white, glossy; the ribs not so much raised at the upper part towards the beak. Mr. PENNANT says this shell has sixteen ribs: LINNÆUS gives it twenty;

twenty ; in this particular both may be right, for in some the side ribs are scarcely defined but by rudiments of the spines.

This is common on most of our shores, and very numerous in some places, mostly worn and bleached white : live shells are rarely obtained but by dredging : in this manner we have taken very fine specimens from *Salcomb bay*. At *Falmouth* in *Cornwall* a shell very similar to this in shape is common on the shore, and in the sand dredged from the harbour : these have neither spines nor tubercles, vastly stronger and thicker, the ribs more convex, on which sometimes are a few rudiments of tubercles ; colour dark rusty-brown : inside furrowed only about half an inch from the margin.

We dare not venture to give this as a distinct species, never having been able to procure it in a recent state, although we have picked up some hundreds ; and what is remarkable, none of the thinner shells are to be met with at that place. It is however sometimes found on some parts of the *Devonshire* coast with the other, and we have taken it on the coast of *Caermarthen*.

The young of the *echinatum* have the ridges, or ribs so much more angulated or sharp, as to have been confounded with the *ciliare*



4.

Cardium ciliare. *Lin. Syst.* p. 1122. 80. — *Gmel. Syst.* p. 3248. 9. CILIARE.
Br. Zool. t. 50. f. 39.

Cardium

Cardium ciliare. *Pult. Cat. Dorset.* p. 31.

Don. Br. Shells. i. t. 32. f. 2.

Chem. Conch. vi. t. 17. f. 171. 172.

Lister Conch. t. 325. f. 162.—*Gualt.* t. 72. C.

Turt. Lin. iv. p. 202.

Cardium parvum. *Da Costa.* p. 177.

C. with an orbicular, thin, delicate shell; with about eighteen sharp ribs, furnished with very compressed pointed spines; the grooves or furrows flat at the bottom, and somewhat glossy: colour generally white, but sometimes partly yellowish.

This elegant species is rather scarce in *England*, though it has been noticed on several of our shores. We have found it sparingly in *Cornwall* and *Devonshire*. Diameter rarely above three-quarters of an inch.

5.

LÆVIGATUM.

Cardium lævigatum. *Lin. Syst.* p. 1123. 88.

Gmel. Syst. p. 3251. 18.

Br. Zool. t. 51. f. 40.—*Petiv. Gaz.* t. 93. f. 12.

Da Costa. p. 178. t. 13. f. 6. 6.

Pult. Cat. Dorset. p. 31.—*Gualt.* t. 82. A.

Don. Br. Shells. ii. t. 54.

Chem. Conch. vi. t. 18. f. 85. 86.

Lister Conch. t. 332. f. 169.—*Id. Angl.* t. 5. f. 32.

Cardium oblongum. *Gmel. Syst.* p. 3254. 34?

crassum. *Id.* p. 3254. 35?

fluviale. *Id.* p. 3255. 40.

C. with

C. with a sub-oval strong shell, striated longitudinally; covered by a glossy yellowish-brown *epidermis*, which renders the striæ nearly obsolete; a few irregular, concentric wrinkles are also observable: beneath the *epidermis* the shell is of a flesh colour. Inside smooth, glossy, white; margin denticulated. Length two inches and a half; breadth two inches. Young shells beautifully polished and mottled with reddish-brown, or pink; inside pink, except at the margin, where it is broken into spots in some, in others plain white.

This species is found on many parts of our coast, but is not commonly met with in a living or recent state.

We have frequently taken it by dredging in *Salcomb bay*.



6.

C. with a flat, sub orbicular shell; colour rufous-white, *Nodosum*, with twenty four ribs covered with close-set, obtuse tubercles. Inside white, glossy; margin strongly denticulated.

We found this new species sparingly amongst sand from *Falmouth* harbour. Diameter three-quarters of an inch.

Although this shell bears some resemblance to the young *echinatum*, it must not be confounded; the young of that species is always more globose, or convex; the ribs are more sharp, and the tubercles more pointed and distant.

M

C. with

7.

ELONGATUM.

C. with a compressed, sub-oval, sub-angulated shell, of a yellowish-white or light rufous colour; with twenty one ribs, faintly wrinkled and rounded; *umbo* not central; posterior side somewhat elongated, and angulated. Diameter a quarter of an inch.

We found this new species by dredging in *Salcomb bay*, but sparingly.

8.

EXIGUUM.

Cardium exiguum. *Gmel. Syst.* p. 3255. 37.

Lister Conch. t. 317. f. 154.

Walk. Min. Shells. f. 83.

Cardium pygmaeum. *Don. Br. Shells.* i. t. 32. f. 3.

Turt. Lin. iv. p. 207.

C. with a very convex, sub-triangular, sub-cordated, white shell, with about twenty tuberculated ribs, the interstices strongly striated transversely: anterior side much sloped, running into an angle nearly opposite the *umbo*. Old shells lose the tubercles and become wrinkled all over. Inside smooth, white, frequently rufous at the angulated side; margin denticulated. Length from the beak to the projecting angle of the front margin rather more than half an inch; breadth nearly the same.

We have found this species in great abundance at *Falmouth* in sand from the harbour; and not uncommon at *Salcomb*, in *Devonshire*. Have also received it from Mr. Boys, found on the coast of *Sandwich* sparingly.

Cardium

Cardium medium. *Lin. Syst.* p. 1122.—*Gmel. Syst.* p. 3246. MEDIUM.

Turt. Lin. iv. p. 200.

Chem. Conch. vi. t. 16. f. 162—164.

Lister Conch. t. 316. f. 153.

Gualt. t. 83. f. B.

Don. Br. Shells. i. t. 32. f. 1.

C. with a sub-triangular, sub-cordated shell, with about thirty six smooth ribs, of a white colour, spotted and variegated with chefnut-brown: somewhat truncated on one side, and running into an angle at the front margin; the other side is shorter and rounded. Inside white, usually coloured with ferruginous or chefnut about the truncated side: primary teeth one in each valve, which with the lateral ones are strong and elevated: margin crenated.

On the authority of Mr. DONOVAN we have given this as a *British* shell, as he informs us it has been found near *Hartlepool*, on the coast of *Durham*. The figure given by that author is scarce an inch in length: foreign specimens are more than double that size.

Said to be found in the *Mediterranean* and *American* seas. It has much the shape of the *Cardium exiguum*.



Cardium læve apice minuto. *Walk. Min. Shells.* 86?

RUBRUM.

C. with a convex, smooth, glossy, pellucid, red shell: hinge not quite central; rather broader than it is long, rounded at both ends: *umbo* prominent; hinge with nearly

M 2

obsolete

obsolete primary teeth; lateral ones very conspicuous. Inside glossy red; margin plain.

Not uncommon in sand from *Falmouth*, and some parts of the *Devonshire* coast, particularly about *Kingsbridge*. A minute species not exceeding the eighth of an inch in breadth.

From the description in WALKER'S Minute Shells, we have little doubt but this is the shell there described; and that either the size was forgot to be placed with the figure, or that it is found of a superior size on the coast of *Kent*.

11.

DISCORS.

Tellina pisiformis. *Gmel. Syst.* p. 3241 ?
Turt. Lin. iv. p. 196 ?

C. with a very convex, sub-orbicular, glossy, white shell, finely striated in an oblique direction, curved at the anterior side, the posterior end in a contrary direction, forming an acute angle with the others; these are so fine as scarcely to be observed by the naked eye: *umbo* small, central, and turns a little to one side. Inside glossy white; margin plain; hinge furnished with one tooth; in the opposite valve two, one of which is very small, with remote lateral teeth-like laminae. Size of a small pea, or rather more than a quarter of an inch long, and not quite so broad.

We

We hesitate to determine this shell to be actually *English*, having only found one dead specimen in sand at *Falmouth*, taken from the harbour.

12.

Cardium subcordatum antice muricatum. *Walk. Min. Shells.* MURICATULUM.
f. 84.—*Adams. Microsc. t. 14. f. 44.*

C. with a heart-shaped, opaque, white shell, margin muricated.

A microscopic species, minutely small, found at *Sheppy* island, not uncommon.

13.

C. with a thin, fragile, semi-pellucid, orbicular, white shell, finely and regularly striated transversely in an arcuated manner, as if cut with an engraving tool, with a few irregular concentric furrows; not glossy: beak or *umbo* central, pointed at the apex, and turning to one side; hinge furnished with one primary tooth in each valve; laminated teeth remote: on the side of the middle tooth a fulcus or groove in which the connecting cartilage is fixed. Inside white, a little glossy, very concave; margin slightly crenated. Diameter not quite half an inch.

TAB. 3. f. 2.

This shell has somewhat the habit of the *Tellina divaricata* of LINNÆUS.

We found this elegant species in *Falmouth* harbour, dredged up with sand for manure; but not common.

Tellina

14.

CORNEUM.

- Tellina cornea.* *Lin. Syst.* p. 1120. 72.
Gmel. Syst. p. 3241. 76.
Chem. Conch. vi. t. 13. f. 133. a. b.
Turt. Lin. iv. p. 197.
Lister Conch. t. 159. f. 14.—*Id. Ang.* t. 2. f. 31.
Don. Br. Shells. iii. t. 96.
Br. Zool. t. 49. f. 36.
Lin. Trans. iii. t. 13. f. 39. 40.
Tellina rivalis. *Muller verm.* 387.—*Gualt.* t. 7. B. C.
Cardium Nux. *Da Costa.* p. 173. t. 13. f. 2.
Cardium corneum. *Pult. Cat. Dorset.* p. 31.
Cardium amnicum. *Id.* p. 31?

C. with a thin, pellucid, sub-orbicular, convex shell, marked with fine concentric striæ; *umbo* central, obtuse, with the middle teeth very small, lateral laminated ones remote, prominent. Inside smooth, glossy blueish-white: size commonly about three-eighths of an inch in length, and somewhat broader.

In the river *Thames* it is found of extraordinary magnitude, frequently above half an inch long, and nearly three-quarters wide. Is in a recent state always covered with a thin glossy *epidermis* of a lighter or darker horn-colour.

Common in most flow rivers and stagnant pools.

15.

AMNICUM.

- Tellina amnica.* *Gmel. Syst.* p. 3242.—*Turt. Lin.* iv. p. 197.
Muller. verm. p. 205. No. 389.

Tellina

Tellina amnica. *Chem. Conch.* vi. t. 13. f. 134.

Gualt. t. 7. CC.—*Shroet Flusconch.* p. 193.

No. 12.—p. 194. No. 17. 18. t. 4. f. 7. a. b.

Tellina rivalis. *Lin. Trans.* iii. p. 44. t. 13. f. 37. 38

Turt. Lin. iv. p. 187.

Don. Br. Shells. ii. t. 64. f. 2.

C. with a thin, sub-pellucid, sub-oval, convex shell, fulcated transversely; *umbo* placed nearest to one side; hinge furnished with one central tooth, and two lateral teeth on each side in one valve, standing parallel one within the other, the outer of which is very small; in the other valve two primary teeth approximating, and standing oblique, with one lateral tooth on each side: colour like the preceding species; size much inferior. Length rarely three-eighths of an inch, breadth half an inch.

This shell had long been confounded in *England*, until Doctor MATON defined the distinction in the *Linnean Transactions*. The Doctor remarks, that he generally found it on the chalky parts of the bed of the *Avon*, and in rivulets communicating with it near *Salisbury*.

We have found it not uncommon in the northern *Avon*, in *Wiltshire*, a different river from that before mentioned, running through the north of that county, and discharging itself into the *Bristol* channel; whereas the other flows through *Hampshire*, and disembogues near *Christchurch*.

It

It has also occurred to us in other places, particularly in the water-courses in the meadows near *Wareham* in *Dorsetshire*; but by no means so plentiful as the *C. corneum*.

There can be no doubt but this is the *Tellina amnica* of MULLER, which he describes very well in the following words, *testa subcordiformis transversim sulcata, umbone obtuso*. It is rather unfortunate that the name of *Tellina rivalis* has of late been adopted for this shell, as it is likely again to produce confusion, MULLER having previously given that name to the *T. cornea* of LINNÆUS.

It is indeed at once distinguished from that shell by its more oval shape, strongly sulcated appearance, and by the *umbo* not being in the centre: the hinge is also much stronger, and the teeth though somewhat similar, are much larger and more conspicuous.

Our late worthy friend Doctor PULTENEY, does not seem to have sufficiently defined the distinction in his *Cardium amnicum*, to make us consider it other than a variety of the *C. corneum*.

A minute shell not above a line in length, similar to this in shape, but somewhat more cordiform, and tumid, and with teeth as strong in proportion, is very common in almost all the waters inhabited by either of the two preceding species; and frequently plentiful in the mud or sediment of rivulets, ponds, and even ditches where none of a superior size are found; but we cannot determine
whether

whether it is really distinct. It is however proper to remark, that the young of the *amnicum* extracted from the parent shell, though not much inferior in size, are always more compressed.

16.

Tellina lacustris. Gmel. Syst. p. 3242.—Turt. Lin. iv. p. 197. LACUSTRE.

Muller. verm. p. 205. No. 389.

Chem. Conch. vi. t. 13. f. 135.

Shroet Flusconch. p. 191. No 12.

C with a sub-rhomboidal, thin, pellucid, smooth shell, of a pale horn-colour, sometimes covered with a dark brown *epidermis*; rather compressed, particularly round the margin: *umbo* central, small, but extremely prominent, projecting beyond the commissure, and when the valves are closed, and the shell viewed sideways, exhibits a cordiform shape; hinge slight, teeth small, in each valve a primary tooth, one of which is plain, the other bifid; with lateral teeth in both valves, one on each side the hinge, and two additional very minute laminae in one valve, situated as in the preceeding species. Length three-tenths of an inch; breadth four-tenths.

We were first favoured with this by Mr. SWAINSON, in whose cabinet of *British* shells were several under the title of *Tellina compressa*. This gentleman informed us it was found in a river near *Bulstrode*, and that he had taken it in the river near *Longford*, but that it was scarce.

N

Since

Since that period we have taken it in a ditch, or water-course subject to be overflowed by the river *Aun*, near *Hatch*, in *Devonshire*; and in the *Avon*, at *Lackham*, in *Wiltshire*, sparingly; and lately in great abundance in a small pond under the downs, close to the village of *Wedhampton*, in the last county; where neither the *corneum* nor *amnicum* were to be found. It is remarkable this pond, which affords one or two other of the more rare shells, especially the *Helix nautiloides*, has no communication with any other water, but stands exposed at a very considerable distance from any, and much higher than any in the neighbourhood.

It is scarcely possible this shell can be confounded with the *C. corneum*, if the smallest attention is paid to the remarkable produced *umbo*, and the compressed spreading margin, independent of the sub-rhomboidal shape, most conspicuous in full grown specimens.

There is no doubt this is the *Tellina lacustris* of MULLER, though he says it has six lateral teeth, and no middle ones. CHEMNITZ observes that a good magnifying glass is required to find all the teeth MULLER has given it, but that it has middle teeth, though they are very small.

In the larger, or full grown shells, there is no difficulty in discovering by the assistance of a good pocket lens, or *hand megalascope*, the six teeth described by MULLER, as well as the central ones: but younger shells are so extremely

tremely thin that the central and smaller lateral teeth are not so readily discovered.

The animal of this, as well as the two preceding, are viviparous, producing from six to twelve at a time, and are probably either androgynous or hermaphrodite, as all those we have dissected in the early part of the month of June contained perfect young. It is a *Tethys*, of a pellucid white colour, with a very long tongue-shaped foot, or *sustentaculum*, situated at the posterior end, exceeding the length of the shell when extended; by this it moves backwards by jerks, dilating and contracting it alternately: at the anterior end are two tubes close together, the longest is nearest the hinge, and is about one-fourth the length of the shell.

 GEN. IX.

 MACTRA.

Animal a TETHYS.

SHELL: bivalve: valves equal, inæquilateral.

Hinge: middle tooth complicated with an adjacent groove, or pit; lateral teeth remote, inserted into the opposite valve.

1.
SOLIDA.

Mastra solida. *Lin. Syst.* p. 1126. — *Gmel. Syst.* p. 3259. 13.
Br. Zool. t. 51. f. 43. A. — t. 52. f. 43.
Chem. Conch. vi. t. 23. f. 229. 230.
Lister Conch. t. 253. f. 87. — *Id. Angl.* t. 4.
 f. 24
Pult. Cat. Dorset. p. 31.
Don. Br. Shells. ii. t. 61.
Turt. Lin. iv. p. 211.

Trigonella zonaria. *Da Costa* p. 197. t. 15. f. 1. 1.

Trigonella Gallina. *Id.* p. 199. t. 14. f. 6. 6.

M. with a strong sub-triangular shell, of a yellowish-white colour; with a few concentric ridges, sides equal;

umbo

umbo central; lateral teeth large, prominent. Inside glossy white. Length an inch and a half; breadth an inch and three-quarters. Worn shells frequently become deeply furrowed or zoned, with grey, or slate-colour, and sometimes yellow. In this state it is figured in the *British Zoology*, as well as the perfect shell.

DA COSTA has given the figure of a worn shell for his *Trigonella zonaria*; and the perfect shell he makes distinct by the name of *Trigonella Gallina*; and says that, it is by the common people of *Cornwall* called *Hens*. He is perhaps right with respect to the vulgar name, as we find it so called in some parts of *Devonshire*. It is therefore perfectly clear that the *Mastra Solida* of PENNANT, and the *Trigonella zonaria*, and *Gallina* of DA COSTA are nothing more than this species in various states.

It is one of the most common shells on the south coast of *Devon*, and frequently taken by the common people about *Dartmouth* for culinary use.

Trigonella subtruncata. *Da Costa*. p. 198.

Mastra Stultorum. *Br. Zool.* t. 52. f. 42.

2.

SUBTRUNCATA.

M. with a strong, sub-triangular, yellowish-white shell, transversely striated, with sometimes a few ridges; rounded on one side, the other more pointed and longer; *umbo* large, prominent, the sides near the beak much turned inwards, especially the anterior, which is depressed into a cordiform

cordiform shape, when the whole shell is viewed sideways. Hinge not quite central; teeth similar to the preceding species. Inside smooth, yellowish-white.

This has frequently been supposed a mere variety of the *M. solida*, and has been generally placed as such in cabinets. DA COSTA's description of it is very good. It is found in *Hampshire*, and we have picked it up on several parts of the south *Devon* coast. It seldom grows to half the size of the *solida*. Length rarely more than three-quarters of an inch; breadth an inch, and commonly much less.

When compared with the *Maetra solida* of the same size, it will be found to be more convex and angulated: the *umbo* larger: sides from the beak more straight, and turned inwards, and one end more produced.

Mr. PENNANT has given a very good figure of this shell; but has erroneously made it the *Maetra Stultorum* of LINNÆUS.

3.
STULTORUM.

Maetra Stultorum. *Lin. Syst.* p. 1226. 99.

Gmel. Syst. p. 3258. 11.

Chem. Conch. vi. t. 23. f. 224. 226.

Lister Conch. t. 251. f. 85.

Pult. Cat. Dorset. p. 31.—*Turt. Lin.* iv. 211.

Tellina radiata. *Br. Zool.* t. 49. f. 30.

Trigonella radiata. *Da Costa.* p. 196. t. 12. f. 3. 3.

M. with

M. with a thin, sub-triangular, semi-pellucid shell, faintly striated transversely; covered with a thin *epidermis*, of a light rufous-brown colour, irregularly rayed with broad and narrow whitish lines; sometimes of a reddish hue: *umbo* central, prominent, frequently of a purplish cast: *sides* nearly equal. Inside pale purple, which commonly gives a tinge of the same colour on the outside, when the *epidermis* is worn off. Length one inch and a half; breadth one and three-quarters.

According to Doctor PULTENEY, this species is found at *Poole* and at *Weymouth*. DA COSTA says *Dorsetshire*, *Cornwall*, *Cheshire*, and at the mouth of the *Mersey*; also on the coast of *Aberdeenshire* and other shores of *Scotland*. We have found it on the coast of *Caermarthenshire*, *Kent*, and *Devonshire*, but not common.

This is not the *Tellina radiata* of LINNÆUS. Mr. PENNANT was mistaken with respect to his Synonyms.



Mastra dealbata. Pult. Cat. Dorset. p. 31.

Mastra pellucida. Chem. Conch. vi. t. 24. f. 234.

Gmel. Syst. p. 3260. 21.

Turt. Lin. iv. p. 213.

4.

DEALBATA.

TAB. 5. f. 1.

M. with a thin, fragile, pellucid, oval, white shell, very finely striated, with a few coarser concentric wrinkles; the smaller end gaping a little: *umbo* not quite central, but rather nearest the larger end: middle tooth
in

in one valve broad, bifurcated, angulated close to the beak; lateral teeth not very remote. Inside glossy white, moderately concave; margin plain, edge sharp.

DoCTOR PULTENEY first noticed this species as a *Eritish* shell: it was found by Mr. BRYER at *Weymouth*.

We have seen specimens rather larger than that mentioned by the Doctor, said to be found on the same coast. Length one inch; breadth one and a half.

From the circumstance of this shell not closing at one end, there can be very little doubt but it is the *Mastra pellucida* of CHEMNITZ, and not the *fragilis* as some have thought; indeed the description and figure given by him answers perfectly well.

5.
COMPRESSA.

Mastra compressa. *Pult. Cat. Dorset.* p. 31.

Trigonella plana. *Da Costa.* p. 200. t. 13. f. 1. 1.

Venus borealis. *Br. Zool.* No. 52.

Mastra Listeri. *Gmel.* p. 3261. 26.—*Turt. Lin.* iv. p. 213.
List. Con. t. 253. f. 88.—*Id. Ang.* t. 4. f. 23.

Tellina borealis. *Don. Br. Shells.* ii. t. 64. f. 1.

M. with a flat, thin, semi-pellucid, sub oval, sub-tri-angulated shell; of a yellowish-white colour; sometimes light ferruginous, and often blackish, or banded with these colours, occasioned by the soil it is found in: is rather wrinkled irregularly than striated, and not glossy: *umbo* small,

small, central; hinge without lateral teeth; cartilage cavity large, triangular; primary teeth small; a single one locking into a bifid tooth in the opposite valve. Inside smooth, glossy, white; margin plain. Length one inch and a half; breadth two.

There is no doubt Mr. PENNANT was acquainted with this very common *British* species, though he has mistaken it for the *Venus borealis* of LINNÆUS: his other synonyms confirm this opinion. DA COSTA has erroneously considered the *Tellina crassa* and *Venus borealis* of the *British Zoology* to be the same shell; whereas the descriptions given by PENNANT, though concise, are sufficient to note the distinction.

It is remarkable, that it does not appear LINNÆUS was acquainted with this shell: and GMELIN has evidently taken it from LISTER, as he says "*Habitat ad ostium fluvii Angliae Tees;*" and calls it *Listeri* in compliment to that author.

This is one of the most plentiful *British* species, and may almost be termed a sub-marine shell, being chiefly found at the mouths of rivers, or inlets not remote from fresh water; and though never beyond the flux of the tide, yet it delights in situations where fresh water is occasionally flowing over. It principally inhabits sludge or muddy places, buried to the depth of five or six inches.

O

Doctor

DoCTOR PULTENEY considers this to be the *Piperata Chama* of the *Latins*, *Maetra piperata*, *Gmel. Syst.* p. 3261. a shell well known in the *Mediterranean*, and greatly relished as food. It is not eaten in any part of *England* that we know of: and indeed, those we have tasted were extremely bitter.

The animal has two slender tubes of a yellowish colour, placed near together at the anterior end; one, about three inches long, is thrown about in search of food, such as insects; which may be seen passing up this transparent syphon, with the current of water it is continually taking in, and discharging at the shorter tube, placed nearer to the hinge; retaining only the nutritious matter: but it occasionally ejects the superabundant water with considerable velocity from both tubes, particularly the longest.

6.
BOYSII.

TAB. 3. f. 7.

Maetra Alba. *Lin. Trans.* vi. t. 16. f. 9. to 12. (*Wood.*)

M. with an oval, flat, thin, pellucid, glossy, white shell, almost smooth, or with a few distant, obsolete, concentric striae: *umbo* placed nearest to the lesser end, very small, and a little turned at the apex: primary teeth one in each valve, small; cartilage cavity broad; lateral teeth in one valve only, broad, elevated. Inside smooth, glossy, white; cicatrix nearly obsolete, large, running from the smaller end two thirds across the shell, parallel with the margin. Length rather more than half an inch; breadth exceeds three-quarters.

This

This new species was first discovered by Mr. Boys at *Sandwich*, who favoured us with several specimens: we have since found it, rarely in sand, from *Salcomb bay*, and *Biddeford bay* in *Devonshire*; and also on *Studland beach*, in *Dorsetshire*, but none so large as those on the *Kentish* coast.

7.

M. with a strong, sub-triangular, opaque, white shell; *TRIANGULARIS.*
umbo prominent, obtuse; sides a little unequal; hinge *TAB. 3. f. 5.*
 strong; primary tooth in one valve large, bifid; in the
 other two small teeth, with a triangular cavity between;
 lateral ones depressed. Inside white, not very glossy,
 margin strongly crenated. Length one eighth of an inch;
 breadth rather less.

There are no perceptible striae on this shell, yet it has very little gloss. The hinge does not strictly correspond with the characters of the genus, but we could not with more propriety place it elsewhere. It is a singular shell, and cannot be confounded for the young of any other species.

We have found it in sand from *Falmouth harbour* alive, but not common; and more plentiful, in sand, on various parts of the coast of *South Devon*.

8.

Mastra lutraria. *Lin. Syst.* p.1126.—*Gmel. Syst.* p.3259. 14. *LUTRARIA.*
Chem. Conch. vi. t. 24. f. 240. 241.
List. Con. t.415. f.259.—*Id. Ang.* t.4. f.19.
Br. Zool. t. 52. f 44.

Mastra lutraria. *Lin. Trans.* vi. t. 16. f. 3. 4. (*Wood.*)
Pult. Cat. Dorset. p. 32
Don. Br. Shells. ii. t. 58.
Turt. Lin. iv. p. 211. — *Schroet Flussh.* t. 2. f. 1.

M. with an oblong-oval, yellowish-white shell; with irregular concentric striæ; sometimes almost smooth, with only a few small ridges; others more strongly ridged, especially at the shorter end: *umbo* small, placed nearer to one end, from which both sides slope a little: tooth in one valve triangular, no lateral teeth. Inside glossy white; gaping a little at both ends.

This species has frequently been confounded with the *Mastra hians*. It is not uncommon on many parts of our coast, especially near the influx of rivers: is found remarkably large near *Laugharne* on the coast of *Caermarthen*, and in great abundance: also in some parts of *Cornwall*, but more rare on the south coast of *Devon*, and in *Dorsetshire*. Not unfrequently taken above two inches and a half long, and five broad. It is rarely obtained alive, except by digging, and that only when the tide is unusually low: their place of concealment is generally known by a dimple on the surface, through which they eject water to a considerable height; though the shell is frequently buried two feet beneath. The animal of this and the following species, being an *Ascidia*, makes a deviation from the generic character in that respect; it is large, and protrudes several inches at the smaller end in search of food; frequently not less than seven or eight.

Mastra

Mastra hians. *Pult. Cat. Dorset*. p. 32.

HIANS.

Lin. Trans. vi. t. 16. f. 5. 6. (*Wood.*)

Chama magna. *Da Costa*. p. 230. t. 17. f. 4.

Mya oblonga. *Gmel. Syst.* p. 3221. 10.—*Turt. Lin.* iv. p. 177.

Chem. Conch. vi. t. 2. f. 12.—*Gualt.* t. 90. A.

M. with a strong, oblong shell, with rugose, concentric wrinkles, most so at the end remote from the hinge; opaque, dark-brown, with frequently a rufous tinge; sometimes dark cinereous, and when recent, covered with a thick, dusky *epidermis*: *umbo* small, placed near to one end; the upper margin next to the hinge somewhat arcuated; hinge furnished with one flattish tooth, grooved on the fore part, locking in between two in the opposite valve, the smallest of which is bifid; the cavity to which the connecting cartilage is fixed, is large and triangular; no lateral teeth. Inside white, with a strong, elevated ridge along the upper side of the cicatrix: the longer end very considerably gaping. Length two inches and a quarter; breadth five inches.

It is very remarkable, shells so materially different as the *Mastra lutraria* and this, should have been so confounded. *DA COSTA* has given a figure of the *M. hians* with most of the synonyms of the *lutraria*, and has not described that shell at all. *GMELIN* expresses a doubt, whether it is not a variety of the *Mya arenaria*. Most assuredly that author had never examined this shell, or he could not have expressed such a doubt, as no two can be more distinct; and had he not quoted a tolerably good figure in

CHEMNITZ,

CHEMNITZ, we could not have supposed he intended this shell.

This species was given the name prefixed to it by Doctor SOLANDER, as we are informed by Doctor PULTENEY, who has very well defined the distinction between this and the *lutraria*, by observing, that the hinge is placed much nearer to the posterior side; is always sinuous, or much hollowed on the margin below the hinge, towards the anterior or long side. It is a much more rude and rough shell; and is distinguished farther, by a strong thick rib on the inside, running in a curved direction from the edge, towards the hinge. And adds, that the markings of the cicatrix of the animal, is of a different figure from that of the *M. lutraria*: a circumstance not sufficiently adverted to, as yet, in the description and distinction of shells. We may add to this definition, that the tooth is not triangular, as in that species.

This appears to be a local shell; it is not uncommon in the river between *Truro* and *Falmouth* in *Cornwall*; and is frequently brought up with the sea-sand to the former place, which is there collected for manure. We have also found it in *Falmouth* harbour not so common, and rarely double valves: live shells are seldom taken; from which we conclude it penetrates deep in the sand. Doctor PULTENEY speaks of it as not uncommon on the *Dorset* coast; and single valves are sometimes found on the shores of *Devonshire*.

GEN.

 GEN. X.

 DONAX.

Animal a TETHYS.

Shell: bivalve: anterior margin very obtuse.

Hinge: with two teeth in the middle, and one lateral tooth remote.

1.

Donax Trunculus. *Lin. Syst.* p. 1127. — *Gmel. Syst.* p. 3263.4. TRUNCULUS.
Br. Zool. t. 55. f. 45.

Pult. Cat. Dorset. p. 32. — *Gualt.* t. 88. O.

Lin. Trans. vi. t. 16. f. 13. — 16. (*Wood.*)

Chem. Conch. vi. t. 26. f. 253.

Favan. t. 49. E 2.

Lister Conch. t. 376. f. 217. — *Id. Angl.* t. 5.
 f. 35.

Don. Br. Shells. i. t. 29. f. 1.

Turt. Lin. iv. p. 214.

Cuneus vittatus. *Da Costa* p. 207. t. 14. f. 3.

D. with an oblong, smooth, glossy shell, finely striated longitudinally, covered with a thin *epidermis*, most times
 of

of a light yellowish colour, fasciated with purple, with two or three faint white rays from the beak: some are wholly yellow, with darker fasciæ; *umbo* small, placed nearest to the lesser end: teeth small, lateral one not very remote. Inside partakes of the colour of the exterior; those banded with purple are of that colour within, the others quite yellow like the outside; margin crenated; valves not very concave.

This is not an uncommon species on many of our sandy shores: plentiful between *Laugharne* and *Tenby* in *Wales*, and on *Dawlish Warren* in *Devonshire*; more rare westward, and in *Cornwall*. In *Dorsetshire* not common. Length most generally five-eighths of an inch; breadth one inch and a quarter; sometimes, though rarely, an inch and a half.

2.

DENTICULATA.

Donax denticulata. *Lin. Syst.* p. 1127.—*Gmel. Syst.* p. 3263. 6.
Br. Zool. t. 55. f. 46.—*Turt. Lin.* iv. p. 215.
Pult. Cat. Dorset. p. 32.
Lister Conch. t. 376 f. 218. 219.
Gualt. t. 89. D.—*Favan.* t. 49. E. 3.
Chem. Conch. vi. t. 26. f. 256.

Cuneus truncatus. *Da Costa.* p. 205.

Donax crenulata. *Don. Br. Shells.* i. t. 24.

D. with a very strong, thick, sub-cuneiform shell, striated longitudinally; the interstices punctated, or transversely striated; with usually a few broad purple rays from the

the beak; the larger end much sloped and truncated; at which part the striæ run transversely, and somewhat undulated: a prominent ridge upon the angle of the slope, running from the beak to the opposite margin: *umbo* placed near to the larger side: hinge furnished with strong teeth: a lateral tooth on each side the middle ones. Inside purple, very concave under the *umbo*; margin denticulated. Length about six-eighths of an inch; breadth one inch.

DA COSTA must certainly have been deceived in saying, it is frequent on most of our shores, and that he had received it from *Essex*, *Sussex*, *Cornwall*, and other western coasts, the isles of *Scilly*, *Yorkshire*, and from *Wales*; also from *Aberdeenshire*, and the *Orkney* islands in *Scotland*; and from the shores of the county of *Cork* in *Ireland*.

However this may be, few of our conchological friends ever found it, and it is in general esteemed so rare that many have doubted its existence as a *British* species. We confess it has never fallen within our researches.

DOCTOR PULTENEY says it was found at *Weymouth*; and Mr. BRYER, a diligent observer of nature, favoured us with several specimens, which he assured us he picked up on the coast of that place; one of which was intirely white, another plain purple without rays.

This species is much stronger and thicker than the *Trunculus*, the striæ more conspicuous, is much longer

P

in

in proportion to its breadth, and is at once distinguished by its truncated, cuneiform shape.

3.

COMPLANATA.

TAB. 5. f. 4.

Tellina variegata, unico radio, five plagula albescente conspicua. *Lister Conch.* t. 384. f. 227.

D. with an oblong, smooth, and extremely glossy shell, of a light yellow, or faint purplish colour, with small spots or streaks of white, and one broad ray of the same from the beak to the opposite margin, edged with ferruginous: in some a few distant transverse striæ, nearly obsolete, are observeable; but no longitudinal ones: *umbo* placed nearest to one end: teeth small, especially the lateral ones. Inside purple, margin quite smooth. Length five-eighths of an inch; breadth an inch and a quarter.

This elegant species has much the habit of the *Trunculus*, and no doubt has been sometimes confounded with it; from which, however, it is readily distinguished by being rather more flat, by the shorter end being more produced, in not having any longitudinal striæ, and the margin not being crenulated; as well as by the invariable single white ray from the *umbo*. It is a rare shell, and not noticed by any one, we believe, except LISTER.

We have found it sparingly on *Milton* sands, on the *South Devon* coast, and at *Falmouth*; and believe it is sometimes met with on the shores of *Dorset*, as we observed

served it in the collection of a friend chiefly made on that coast; placed indiscriminately with the *Trunculus*.

In a live, or recent state, it is covered with a highly polished *epidermis* of a yellowish colour, which gives to the white markings a tinge of the same. In the specimens we have collected, it is sometimes observed to be banded concentrically with lighter and darker shades.

It is in the cabinet of Mr. SWAINSON under the title of *Donax lævigata*; but we were unwilling to retain that name, lest it might be confounded with the *D. lævigata* of GMELIN, which is a very different shell. This gentleman informed us he received it from *Looe* in *Cornwall*.



Donax plebeia. *Pult. Cat. Dorset.* p. 32.

Lister Conch. t. 389. f. 228?

4.

PLEBEIA.

TAB. 5. f. 2.

D. with a thick, strong, oblong, sub-oval shell, of a dull yellowish horn-colour, smooth, and glossy, except a few distant concentric furrows; most commonly marked with two brown stripes longitudinally from the beak: *umbo* placed nearest to one side; teeth very strong. Inside glossy, paler than the outside; margin smooth. Length scarce half an inch, breadth three-quarters.

DOCTOR PULTENEY, (to whom we are obliged for the first specimen of this shell) says, it was found at *Weymouth*, by the late *Dutchess Dowager of Portland*; and observes,

P 2

that

that it is remarkably distinguished by the size of the teeth, which are very large for so small a shell.

This species has been more recently found on the coast of *Dorset*; as we are assured by Mr. BRYER, who has himself taken it on the shore at *Weymouth*; and who favoured us with a specimen, which is white, and the two rays very faint.

5.
IRUS.

Donax Irus.

Lin. Syst. p. 1128.

Gmel. Syst. p. 3265. 11.

Pult. Cat. Dorset. p. 32.—*Gualt.* t. 95. A.

Don. Br. Shells. i. t. 29. 2. 2.

Turt. Lin. iv. p. 216.

Chem. Conch. vi. t. 26. f. 268. 270.

Tellina Cornubienfis. *Br. Zool.* No. 35.—*Bor. Corn.* t. 38. f. 23.

Cuneus foliatus. *Da Costa.* p. 204. t. 15. f. 6. left hand.

D. with a sub-oval, opaque, rugose, whitish shell, with high concentric membranaceous ridges reflecting upwards, broken or undulated; interstices between finely striated longitudinally: *umbo* small, placed near to one end; *apex* much turned: teeth small, bifid, one excepted. Inside white, or flesh-colour, generally with dark purple about the hinge, and towards the longer side; sometimes wholly of that colour: margin plain.

No shell perhaps varies more in shape than this, sometimes it is nearly as long as it is broad: others in breadth doubly

doubly exceed the length, are almost cylindric, and very convex; many are flat and greatly distorted; yet, notwithstanding scarce two are found alike, the specific characters are strongly marked. Worn shells are sometimes purple on the outside as well as within.

This species perforates the hardest lime-stone, where it is sometimes lodged in great abundance: we have found detached pieces of such stone thrown upon the coast of *Devonshire*, especially about *Plymouth*, perforated like a honey-comb, with these shells in it. It is also found in some parts of *Cornwall*.

DoCTOR PULTENEY speaks of it as plentiful on the *Dorset* coast in clay, as well as in lime-stone. It rarely exceeds half an inch in length; and three-quarters in breadth.

DA COSTA has quoted the *Tellina cornubiensis* of PENNANT, and BORLASE for his *Pectunculus truncatus*, in which he has certainly erred; and indeed his shell seems to be in perfect obscurity. The general description might answer very well for a worn specimen of the *Donax Irus*, but the margin being notched forbids it.

GEN.

 GEN. XI.

 VENUS.

Animal a TETHYS.

SHELL; bivalve, the anterior margin of the lip of one valve sometimes incumbent on the other.

Hinge, with three approximating teeth; the lateral, diverging from the *apex*.

Umbonal, and sub-umbonal regions distinct.

1.
PAPHIA.

Venus Paphia.

Lin. Syst. p. 1129. — *Gmel. Syst.* p. 3268.

Chem. Conch. vi. t. 27. f. 274 278.

Pult. Cat. Dorset. p. 33. — *Gualt.* t. 85, A.

Turt. Lin. iv. p. 218.

Pectunculus fasciatus. *Da Costa.* p. 188. t. 13. f. 3.

Vetula. *Id.* p. 190. t. 13. f. 5. 5.

V. with a strong, somewhat flat, sub-orbicular shell, with several broad and much elevated ridges, variously streaked, or rayed with brown, purple, red, or yellow, intermixed with white: *umbo* central, *apex* much turned to one side, beneath which is a cordiform depression: the cartilage

cartilage slope in one valve frequently streaked transverse-ly: hinge furnished with strong teeth. Inside smooth, glossy white, or flesh colour, with sometimes a brown mark at one end: margin crenulated.

This species appears subject to much variety; in some the ridges are broad, and nearly flat, others narrower, and turn a little backwards, so much resembling the *Venus Paphia* of LINNÆUS, that we are inclined to believe, with DOCTOR PULTENEY, that it must be considered as that shell in a depauperated state. It rarely exceeds seven-eighths of an inch in length; and one inch in breadth. In comparing the foreign *V. Paphia* with this shell, we perceive in the inside the same shaped *cicatrix*, which is an essential specific character, not sufficiently attended to.

DA COSTA's *Pectunculus fasciatus* is evidently this shell, but his specimens must have been worn, or he would not have described the margin plain. The *Pectunculus Vetula* of the same author, is only a more perfect variety, with stronger ridges and markings.

It is not uncommon in some parts of *Cornwall*; frequent about *Falmouth*, but more plentiful on the south coast of *Devon*, particularly on *Milton* sands.

DOCTOR PULTENEY speaks of it as a rare shell on the *Dorset* coast. An elegant variety, radiated all over with double and treble lines, we have found on the western shores.

Venus

2.

VERRUCOSA.

Venus verrucosa.

Lin. Syst. p. 1130.—*Gmel. Syst.*p. 3269. 6.—*Gualt.* t. 75. H.*Lin. Trans.* vi. t. 17. f. 5. 6. (*Wood*)*Pult. Cat. Dorset.* p. 33.*Don. Br. Shells.* ii. t. 44.*Chem. Conch.* vi. t. 29. f. 299. 300.*List. Conch.* t. 284. f. 122.*Favan.* t. 47. E. 9.*Turt. Lin.* iv. p. 219.

Venus Erycina.

Br. Zool. t. 54. f. 48. 48 A.*Borlase Corn.* p. 278. t. 28. f. 32.

Pectunculus strigatus.

Da Costa p. 185. t. 12. f. 1. 1.Pectunculus membranaceus. *Id.* p. 193. t. 13. f. 4. left hand.

V. with a strong, thick, heavy, sub-orbicular, convex, rugose shell, with numerous, strong, elevated ridges, somewhat recurved, and broken at the ends, (particularly the anterior) into irregular warty knobs: *umbo* turned much to one side; beneath which is a strong cordiform depression; the cartilage slope of the left valve turns inward, slightly striated longitudinally, and marked transversely with brown streaks. Inside smooth, white; margin finely crenated.

Diameter from the *umbo* to the opposite margin two inches and a quarter; breadth rather more. The colour is generally of a dirty white, but sometimes of a dark rusty brown, mostly towards the posterior end. Young shells of an inch diameter have the ridges much more perfect and distinct, and the interstices are prettily crenulated.

This

This species is not uncommon on some parts of the *Cornish* coast, particularly at *Falmouth*, but rarely alive, though frequently with the valves united. We have also found it on the south coast of *Devon*, and in *Dorsetshire*; and have received small worn specimens from the coast of *Kent*. In this mutilated state it has sometimes been considered a distinct species, as is the case with respect to the *Pectunculus membranaceus* of *DA COSTA*.

It is a common shell in the *Mediterranean*.



Pectun. striatulus. *Da Costa* p. 191. t. 12. f. 2. 2.

Pectun. fulcatus. *Da Costa* p. 192.

Venus Gallina. *Gmel. Syst.* p. 3270.—*Turt. Lin.* iv. p. 120.

Chem. Conch. vi. t. 30. f. 308. 310.

Lister Conch. t. 282. f. 120. & t. 295. f. 131.

Lin. Trans. vi. t. 17. f. 7. 8. (*Wood.*)

Gualt. t. 75. O.

Venus rugosa. *Br. Zool.* t. 56. f. 50.

Venus Casina. *Pult. Cat. Dorset.* p. 33.

Venus striatulus. *Don. Br. Shells.* ii. t. 68.

3.

STRIATULA.

V. with a strong, sub-cordated shell, with numerous fine, prominent, recurved, concentric striæ: colour white, or yellowish-brown, rayed with a few rufous-brown stripes from the *umbo*, and frequently marked with fine, close-set, zigzag streaks of the same colour, that make it appear crenated: this is a pretty general character; however, it is sometimes quite plain, without being radiated or streak-

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ed:

ed: *umbo* turns much to one side, beneath which is a cordiform depression: the cartilage slope much depressed, almost smooth, or faintly striated longitudinally. Inside white; margin finely crenated. Length rather more than an inch; breadth an inch and a quarter. A variety is rayed with brown and white.

This species appears to be common on many parts of our coasts. DA COSTA speaks of it, from *Cheshire*, *Yorkshire*, *Flintshire*, the isles of *Scilly*, *Caernarvonshire*, *Cornwall*, and *Dorsetshire*. In the two last places we have found it not uncommon, as well as on the shores of *Devon*, *Caermarthenshire*, and other parts of the south coast of *Wales*.

4.

ISLANDICA.

Venus Islandica. *Lin. Syst.* p. 1131.—*Gmel. Syst.* p. 3271.
Pult. Cat. Dorset. p. 33.—*Gualt.* t. 85. B?
Don. Br. Shells iii. t. 77.—*Turt. Lin.* iv. p. 221.
Chem. Conch. vi. t. 32. f. 341. 342.
List. Conch. t. 272. f. 108.—*Id. Angl.* t. 4. f. 22.
Lin. Trans. vi. t. 17. f. 1. 2. (*Wood.*)

Venus mercenaria *Br. Zool.* t. 53. f. 47.

Pectunc. crassus. *Da Costa* p. 183. t. 14. f. 5.

V. with a strong, thick, sub-orbicular, convex, white shell, wrought with irregular concentric striæ; covered with a rough, but glossy yellowish-brown, or dusky *epidermis*: *umbo* pointed, turned inwards, and curved to one side: no cordiform depression. Inside smooth, white: margin plain. Length three inches and three-quarters; breadth four inches and a quarter.

This

This species is not uncommon on many parts of our coast, but is rarely taken alive, except by dredging in deep water. Is plentiful on the sandy, flat shores of *Caermarthenshire*; rarely in *Devonshire* and *Cornwall*, but on some parts of the *Dorset* coast is thrown up in great numbers, as we are informed by Doctor PULTENEY. It is also found on some of the shores in the north of *England* and *Scotland*.

This is not the *Wampum* shell of the *Americans*; that is the *V. mercenaria* of LINNÆUS, and has never been found on our coasts.



5.

Venus Chione. *Lin. Syst.* p. 1131.—*Gmel. Syst.* p. 3272. 16. CHIONE.

Pult. Cat. Dorset. p. 33.—*Favan.* t.47. B.

Chem. Conch. vi. t. 32. f.343.—*Gualt.* t.86.A.

Lister Conch. t. 269. f. 105.

Don. Br. Shells i.t.17.—*Turt. Lin.* iv.p.222.

Lin. Trans. vi. t. 17. f. 3. 4. (*Wood.*)

Pectunc. glaber. *Da Costa.* p. 184. t. 14. f. 7.

V. with a strong, sub-cordated shell, somewhat wrinkled concentrically, but covered with an extremely smooth, glossy, chestnut-coloured *epidermis*, more or less radiated with a darker shade: *umbo* placed nearest to one end; *apex* turned sideways, beneath which is a strong cordiform depression. Inside white, glossy; margin plain; edge obtuse. Length three inches; breadth three-quarters of an inch more.

Q 2

This

This beautiful species has been esteemed rare in *England*; is mentioned as a *Dorsetshire* shell by DA COSTA and Doctor PULTENEY. It is however a very common species in *Falmouth* harbour, in *Cornwall*; and is taken in abundance amongst the heaps of sand brought in by the barges for manure; frequently live specimens: we have seen more than fifty in one heap.

Amongst these are found some of a lighter colour, with the rays broken into spots, much like the *Venus maculata*; and, as Doctor PULTENEY observes, might well pass for the northern depauperated variety of it.

In *Cornwall* is called *Queens*. Becomes scarce eastward, having never found it on the coast of *Devon*, except a few single valves, very much worn.

6.

EXOLETA.

Venus exoleta. *Lin. Syst.* p. 1134.—*Gmel. Syst.* p. 3284. 75.

Br. Zool. t. 54. f. 49. A. & t. 56. f. 49.

Pult. Cat. Dorset. p. 34.—*Favan.* t. 48. F. 1?

Chem. Conch. vii. t. 38. f. 402. 404. 405. 407.

Lister Conch. t. 290. f. 126.—t. 291. f. 127.—

t. 292. f. 128.—t. 293. f. 129.—*Gualt.* t. 75. F

Don. Br. Shells. ii. t. 42. f. 1.

Turt. Lin. iv. p. 233.

Lin. Trans. vi. t. 17. f. 9. 10. (*Wood.*)

Venus lineata. *Pult. Cat. Dorset.* p. 34.

Pectun. capillaceus. *Da Costa.* p. 187. t. 12. f. 5. 5.

V. with a strong, orbicular shell, with fine, close-set, thread-like concentric striæ, sometimes with a few ridges,

or

or interstices, rather broader and deeper than the rest; most commonly of a light colour, but rarely quite white; some are quite plain, others faintly radiated, or streaked all over with rufous-brown; and not unusual with two or three broad rays only: it is moderately convex: *umbo* much turned to one side, beneath which is a short, much depressed, cordiform impression. Inside smooth, white; margin plain. Diameter two inches. Younger shells slope more from the *umbo* on the anterior side, and in this state it was made a distinct species in the *Museum Portlandicum* by the name of *Venus lineata*; which induced our late worthy friend Doctor PULTENEY to do the same.

This slope however is rarely found after the shell exceeds an inch and a quarter in diameter, when it gradually encreases to rise at that part. The tongue, or *cicatrix*, which is almost an invariable specific character, is alike in both; it is long, somewhat taper, and runs into the middle of the shell more than half way across.

It is not an uncommon species on many parts of our coast; is plentiful in *Cornwall*, especially about *Falmouth*; and on the shores of *Devonshire*, but scarcer in *Dorsetshire*; we have also found it in abundance on some parts of the coast of *South Wales*.



7.

Venus undata. Br. Zool. t. 55. f. 51.—Turt. Lin. iv. p. 233. UNDATA.
Lin. Trans. vi. t. 17. f. 17. 18. (Wood.)

V. with

V. with an orbicular, thin, white shell, with fine, concentric, irregular striæ, which sometimes run into uneven wrinkles: young shells a little glossy: *umbo* prominent; *apex* pointed, and turning a little to one side, without any cordiform depression: hinge strong in proportion to the substance of the shell: in one valve three teeth; in the other two. Inside smooth, glossy, moderately concave; margin smooth; edge acute, and somewhat undated, by a small projection of the lip opposite the hinge, from which runs a broad *cicatrix* into the middle of the shell.

This species, described hitherto only by Mr. PENNANT, has been confounded with the *Tellina rotundata*, but may readily be distinguished by the hinge, and particularly the *cicatrix* in the inside, that shell being wholly destitute of such a mark: the *umbo* is also turned more to one side. We have mentioned before, that Doctor PULTENEY has described the *Tellina rotundata* for this shell, as is evident by his calling it *Tellina undata*, and quoting the *Venus undata* of PENNANT: indeed he is not singular in this respect, for we have seen it in more cabinets than one placed as such. This shell does not appear to be a plentiful species, but we have found it at *Falmouth*, and on the coast of *South Devon*, as well as in *Biddeford* bay: but no where so fine as on the shores of *Caermarthenshire* near *Laugharne*.

Diameter from the hinge to the opposite margin, an inch and a quarter; breadth near a quarter of an inch more.

Young

Young shells are frequently very white and pellucid; the larger ones yellowish-white, sometimes tinged with light ferruginous, and rather opaque.



8.

Venus tigerina. *Lin. Syst.* p. 1133.—*Gmel. Syst.* p. 3283.69. TIGERINA.

Chem. Conch. vii. t. 37. f. 190. 191.

TAB. 4. f. 1.

Lister Conch. t. 337. f. 174—*Gualt.* t. 77. A.

Pult. Cat. Dorset. p. 34.—*Favan.* t. 47. D. 1.

Turt. Lin. iv. p. 231.

V. with a sub-orbicular, flat, lenticular, thin, white shell, sometimes with a tinge of purple on the edges; striated longitudinally, crossed with numerous fine striæ, most conspicuous in the interstices, which gives it a reticulated appearance: *umbo* small, pointed, and turns a little to one side: hinge strong for the substance of the shell. Inside smooth, glossy white; *cicatrix* small, and nearly obsolete: margin plain. Length three-quarters of an inch; and seven-eighths wide.

We were first favoured with this elegant species by Doctor PULTENEY, who said it was found at *Weymouth*, *Studland*, and on the north shore at *Poole*. Have since received specimens from Mr. BRYER, who picked them up on the sands between *Weymouth* and *Portland*.

West Indian specimens are much larger, sometimes three inches broad.

Venus

9.

SINUOSA.

Venus sinuosa. *Br. Zool.* t. 55. f. 51. A.

V. with thin, convex shells, with a very deep, obtuse *sinus* or bending, on the front.

Mr. PENNANT is the only author who has described, or figured, this species, from whom we have taken the above description: the breadth of the figure is three-quarters of an inch; the length not so much. We confess this shell is much in obscurity, and perhaps is only an accidental distortion of some other species. It is stated to have been in the *Portland* cabinet. DONOVAN has given the *Tellina flexuosa* of this work for the *Venus sinuosa* of the *British Zoology*.



10.

OVATA.

*Venus ovata.**Br. Zool.* t. 56. f. 56.*Cardium striatum radiatum.* *Walk. Min. Shells.* f. 82.

V. with a sub-oval, opaque, brown shell, somewhat compressed; with strong, costated striæ longitudinally, and more finely striated transversely, causing tuberculated elevations on the ribs: *umbo* nearly central, *apex* turning a little to one side, beneath which is a sub-cordiform depression elevated in the middle; sides nearly similar. Inside glossy white, or flesh-colour; sometimes fine purple in the centre; margin slightly crenated. Length three eighths of an inch; breadth, half an inch.

We have found this very pretty shell at *Falmouth*, and on the south coast of *Devon*. Mr BOYS also favoured us with

with it from *Sandwich*, for WALKER's shell above quoted, and remarked that it was not uncommon upon that coast. The hinge of this species was certainly not duely attended to by Mr. WALKER, or he was not provided with perfect specimens, for it has all the characters of a *Venus* and not the least of a *Cardium*.



V. with a sub-orbicular, somewhat compressed, flesh-coloured shell; very glossy, with broad, concentric striae: from the beak two white lines run half way down the shell, in shape like the letter V meeting at the *apex*; at the extremity of each line is a red streak, diverging outwards to the margin. In some the white lines are wanting, but we have never seen it without the two spots near the margin: *umbo* prominent, pointed, a little turned to one side. Inside glossy white; margin plain. Length a quarter of an inch; breadth rather more.

11.

MINIMA.

TAB. 3. f. 3.

This shell is very thick and strong in proportion to its size, and the teeth very conspicuous. It is a rare species, which we have only found sparingly at *Falmouth*, dredged from the harbour, alive.



V. with a strong, sub-cordated, white shell, with strong, longitudinal, costated striae, and remote transverse ridges, making the depressions between of a long square, and gives the shell a pretty, cancellated appearance: *umbo* placed nearest to one end, much incurvated, and turned a little to one side; the anterior side almost strait, and much

12.

SUBCORDATA.

TAB. 3. f. 1.

R

flop ing

sloping from the beak: cartilage slope large, turned inwards, nearly smooth, and glossy. Inside glossy white; teeth very strong; margin sub-crenated; valves moderately concave. Diameter a quarter of an inch.

We give this species with some doubt, with respect to its being really *British*. It is however but right to mention that we once found it in the sand from *Falmouth* harbour.

13.

GRANULATA.

Venus granulata. *Gmel. Syst.* p. 3277. 33.

Don. Br. Shells iii. t. 83.

Turt. Lin. iv. p. 226.

Venus Marica spuria. *Chem. Conch.* vi. t. 30. f. 313.

Venus Marica. *Born. Mus.* t. 4. f. 5. 6.

V. with a thick, sub-orbicular shell, strongly reticulated: colour white, variegated with spots and streaks of dark chocolate-brown: *umbo* much turned to one side, beneath which is a cordiform depression; the cartilage slope most frequently marked with a few distinct, transverse, dark lines. Inside glossy, dark purple; margin crenulated; *cicatrix* short, conic. Length seven-eighths of an inch; breadth one inch.

Mr. DONOVAN has given a figure of this shell, which he says was found in *Cornwall*.

Two instances only have occurred to us, both dead specimens:

specimens: these we took out of sand from *Falmouth* harbour.

It has generally been considered as an *American* shell.



14.

Venus deflorata. *Lin. Syst.* p. 1133. 132.

DEFLORATA.

Gmel. Syst. p. 3274. 24.—*Favan.* t. 49. P.

TAB. 3. f. 4.

Br. Zool. t. 57. f. 54.—*Turt. Lin.* iv. p. 224.

Chem. Conch. vi. t. 9. f. 79.—82. & 83?

Lister Conch. t. 425. f. 273.—*Gualt.* t. 85. f. G?

V. with an oblong, sub-oval, thin shell, of a yellowish-white colour; tinged, or faintly radiated, with purple, strongest about the *umbo*; with undulated, longitudinal striae, and a few transverse wrinkles, which gives it a reticulated appearance, particularly at the anterior end: *umbo* placed a little to one side, not very pointed, nor reclined. Inside purplish, most so at the smaller end, and is frequently on that part highly coloured; hinge with two teeth in each valve, one of which is large, the other extremely small.

Mr. PENNANT is the only one who has mentioned this as a *British* shell.

We found a perfect, recent, specimen at *Falmouth*, it was dredged from the harbour of that place, but is no doubt a very rare species in *England*. Length one inch; breadth an inch and three-quarters. Foreign shells are generally higher coloured and more radiated.

DECUSSATA.

Venus decussata. *Lin. Syst.* p.1135.—*Gmel. Syst.* p.3294.135.
Pult. Cat. Dorset. p 34.

Don. Br. Shells ii. t.67.—*Turt. Lin.* iv. p.241
Chem. Conch. vii. t. 43. f. 455. 456.

Lift. Conch. t.423. f.271.—*Id. Ang.* t.4. f.20.

Gualt. t. 85. C. E. I. L.

Lin. Trans. vi. t. 17. f. 11. 12. (*Wood.*)

Venus litterata. *Br. Zool.* t. 57. f 53.

Cuneus reticulatus. *Da Costa* p. 102. t. 14. f. 4. 4.

V. with a sub-oval, sub-rhomboidal, strong, reticulated shell, somewhat angulated or cut off diagonally at the anterior end; at which part it is most strongly decussated: *umbo* placed nearest to one end; *apex* turned to one side; beneath which is a slight, lanceolate, cordiform depression. Inside smooth, white, frequently with a little purple on the margin under the cartilage, and at the truncated end: the front margin is divided from the middle by a slender smooth line, that forms a broad border, and surrounds the *cicatrix*; this mark is broad, runs nearly into the middle of the shell, and is divided from the border, to its origin: hinge furnished with three teeth in each valve, one of which is small, and in one valve is almost obsolete in the larger shells; the other teeth are strong and most commonly bifid; middle one always so.

This species is generally of a plain rusty-brown colour, but sometimes marked with sort of characters, or zigzag lines: the longitudinal striæ are coarse, and are scarcely decussated in the middle part of the shell; the ends are frequently

quently so strongly reticulated as to cause small warts or tubercles.

Is common on many parts of our coast, and usually confounded with the following species : the finest we ever saw, were taken in the inlet between *Kingsbridge* and *Salcomb*, and at the mouth of the *Aun*, in *Devonshire* : they lay in shallow water, or about mid-tide, sometimes buried an inch or two under the shingle ; and not uncommonly exposed on the surface : size of the largest, two inches in length ; and three in breadth.

The animal is furnished with two tubes, an inch or more in length, which it protrudes in search of food ; these are divided to their origin.



Chem. Conch. vii. t. 42. f. 439.

Lin. Trans. vi. t. 17. f. 13. 14. (*Wood.*)

16.

PULLASTRA.

V. with a sub-oval, finely decussated shell ; the anterior end sub-truncated, or somewhat angulated like the last ; indeed it is so nearly allied to the *Venus decussata*, that it has generally been confounded for the same.

The principal distinctions are, that this does not grow to the size of that shell ; the striæ in both directions are much finer, regular, and equal on all parts except at the anterior end, where it frequently runs into transverse ridges : the teeth are nearly similar, but in general are
more

more regular and more approximating: the *cicatrix* is rather longer, as it exceeds half the breadth of the shell; and is joined, or very nearly runs into the marginal border (mentioned in the description of the other species) for half its length from its base.

It is a much more elegant shell, especially when young, variegated with cinereous, brown, or purple zigzag lines; and sometimes radiated with the same from the hinge to the opposite margin; the ground colour of the older shells is usually brown, the younger ones white, sometimes with only a few markings at the anterior end. The utmost size is an inch and three-eighths in length; and two inches in breadth: it is most commonly broader in proportion to its length than the *V. decussata*, but we do not perceive the material distinction upon a general review, in the teeth, that Mr. Wood seems to express between these two shells; and must confess the gradations in this respect run so much into each other that no leading character can be drawn from them.

This gentleman however is the first *English* author who has properly divided these shells; to whose definition may be added, that the great leading character besides the structure, and situation of the *cicatrix*, is the formation of the animal inhabitant: that of the *V. decussata* (as before stated) is possessed of two separate tubes, whereas the tubes of this are not quite so long, and connected almost their whole length, except at the tip.

This

This species is found with the last, is frequently eaten by the common people, and in some parts of *Devonshire* indiscriminately called *Pullers* or *Pullets*.

There is very little doubt some of the elegant varieties of this shell, have been described under other denominations: the figure we have referred to in CHEMNITZ is exactly the shape of ours of that size; and we have seen it very similar in markings. In our possession are other varieties, with all the markings of *Venus Tectrix* of the same author, vol. vii. tab. 42. fig. 443. the first is quoted by GMELIN for the *Venus litterata*; whether ours is a depauperated shell of that species, is not easily determined.



17.

V. with a sub-rhomboidal shell, concentrically striated, running into strong wrinkles or ridges at the anterior side; sometimes, though rarely, with very fine longitudinal striæ; colour light brown: *umbo* very near to one end, small, and turned a little sideways: the longer side much truncated: hinge furnished with three teeth in each valve, one of which is small, the others very long, slender, and curve outwards, middle tooth a little bifid. Inside smooth, white, with generally some purple at the truncated end; margin plain: *cicatrix* large, running from the anterior side half way across to the opposite end; valves moderately concave.

PERFORANS.
TAB. 3. f. 6.

This species, at first sight, might readily be confounded with

with the young of the *V. decussata*; but the slender and recurved teeth is a discriminating character, if all others were wanting. It rarely exceeds three-eighths of an inch in length; and five-eighths in breadth. With respect to shape, it is difficult to fix any as a permanent character; it is however most frequently sub-rhomboidal; sometimes nearly as long as it is broad, generally straight on the front margin, but in some instances deeply sinuous or indented; not very unlike Mr. PENNANT's figure of the *Venus sinuosa*.

We found this species in abundance on the shore near *Plymouth*, burrowed in hard lime-stone, detached fragments of which were perforated in all directions, and stuck full of them.

18.

VIRGINEA.

Venus Virginea. *Lin. Syst.* p.1136.—*Gmel. Syst.* p.3294. 136.

Pult. Cat. Dorset. p. 34.

Turt. Lin. iv. p. 241.

Chem. Conch. vii. t. 42. f.443. & t. 43. f.457.

a. b. c.—*Br. Zool.* t.55. without number?

Lister Conch. t. 403. f. 247.

Cuneus fasciatus. *Da Costa* p. 204.

V. with a strong, sub-oval shell, transversely striated; the striæ in some specimens, interrupted in a few places by a deeper furrow: colour various, most commonly of a pale rufous-brown, streaked and spotted in a very pretty manner, with ferruginous, or dull purplish-brown: sometimes with a few interrupted rays or zigzag lines: and rarely

rarely of a fine blush-colour, with two or three white, longitudinal streaks: *umbo* placed much to one side, beneath which is a lanceolate, cordiform depression; hinge with three teeth in each valve, the outer ones a little diverging, middle one bifid. Inside white, frequently tinged with blush-colour; margin plain; edge obtuse; *cicatrix* nearly cylindric, running from the anterior side, not quite half way across towards the opposite end.

This species is not so common as the *decussata*, but is sometimes taken in the same places. We have found it in some parts of *Cornwall*, and rarely in *Devonshire* and *Dorsetshire*.

Those from *Guernsey* are extremely beautiful.



19.

Venus aurea. *Gmel. Syst.* p.3288.98.—*Turt. Lin.* iv.p.236. AUREA—
Lister Conch. t.404.f.249.—*Petiv. Gaz.* 94.8?
Chem. Conch. vii. t. 43. f. 458.

Venus nebulosa. *Pult. Cat. Dorset.* p. 34.

Venus rhomboides. *Br. Zool.* No. 55?—*Turt. Lin.* iv. p.241?

V. with a sub-cordated, moderately strong shell, rounded at both ends like the last, but not so broad in proportion to its length; striated transversely, and marked with very faint longitudinal striæ, scarcely discernable without a glass: *umbo* placed near to one end, small, pointed, turned to one side; beneath which is a lanceolate, cordiform depression: colour various, sometimes white, elegantly marked

S.

marked with brown, or blueish-black, zigzag lines; or mottled with cinereous; others are plain brown, frequently of a yellowish tinge, and sometimes deep ferruginous about the *umbo*: in most there are a few streaks at the anterior margin. It varies also in shape; some are nearly as long as they are broad; others extend at the anterior end, and become more pointed, but in all the front margin is considerably more rounded than in the *Virginea*. Inside yellowish-white; margin plain; valves concave: hinge furnished with three teeth in each valve, the middle one a little bifid. Length commonly about one inch; breadth an inch and three-eighths.

This species has sometimes been confounded with the *Virginea*, but may be readily known, not only by its inferior size, different colour and markings, but by its being more convex, the striae much finer, and the front margin more rounded; besides which it is always longer in proportion to the breadth.

LISTER has given a very good figure of this shell, and has marked it as an *English* species. It was known also to DOCTOR SOLANDER, and was called in the *Museum Portlandicum* by the name of *nebulosa*, which name was retained by DOCTOR PULTENEY in his catalogue of *Dorsetshire* shells, who says it is found on that coast; indeed we observed it on *Studland* beach.

It is very common amongst the sand taken from *Fal-*
mouth

mouth harbour, where we never observed the *Venus Virginea*: it is also not unfrequent on the south coast of *Devon*. A variety of this shell is probably the *V. Rhomboides* of the *British Zoology*.



20.

Pectunculus truncatus. *Da Costa* p. 195 ?

SULCATA.

V. with a strong, thick, sub orbicular, sub-angulated, flattish shell, with concentric ridges; the furrows or *fulci* broader than the elevated parts, and both become nearly obsolete at the sides and towards the beak, where it is only wrinkled: the colour is white, but when alive is covered with a very thick, dusky-brown *epidermis*, so very opaque that the colour of the shell is not to be seen: *umbo* very prominent and large, turning a little to one side; beneath which is a lanceolate, cordiform depression; the cartilage slope is also depressed, and is much more strait than on the opposite side; the exterior margin is rounded. The inside is white, smooth, and glossy at the margin; the middle dull, yellowish, and appears rough when examined with a glass; the edge crenated: hinge remarkably strong; teeth large and prominent; in one valve three teeth, the middle one much larger than the others, with a deep cavity on each side, into which the two teeth of the other valve lock: it has no *cicatrix*, but on each side is a lunated depression, marked with four or five semi-circular ridges, to which the ligaments of the animal are fixed for the purpose of closing the shell. Length seven-eighths of an inch; breadth nearly the same.

S 2

We c

We received this species from Mr. SOWERBY, who informed us it was *English*; and we observed the same shell in the cabinet of *British testacea* belonging to Mr. SWAINSON, who said he received it from the *Dutchess of Portland* as such, and that it has been since found in the north of *Scotland*, where it is known by the trivial name of the *brown circular-furrowed northern cockle*.

It was marked in DOCTOR PULTENEY'S cabinet *Venus fulcata*, but he did not know it had ever been found in this country, nor did he believe it had ever been described, and therefore named it himself.

We have suspected this may be the *Pectunculus truncatus* of DA COSTA, though certainly not the *Tellina Cornubiensis* of PENNANT, which he erroneously quotes. We shall here subjoin the description given by DA COSTA in order that our conchological readers may judge for themselves.

"A small species, very thick and strong, of a somewhat triangular shape; the valves pretty concave; the sides very dissimilar, one being rounded, the other near perpendicular, flattish, or truncated."

"Outside whitish, except towards the upper part, or round the beak, which is of a light purple colour."

"It is wrought with concentric, transverse, broad, and very thick ridges, close-set, with large intermediate fur-

ROWS

rows. On the turn or edge of the truncated side the ridges generally divide or fork, and on the truncated side they tend obliquely upwards from those of the body: this truncated part is rather in a slope than quite perpendicular. The beaks are strong, pointed, and turn sideways. The margins are plain."

"Inside white, smooth, and glossy. The margins delicately notched."

(And adds,) "I received this species from the coast of Cornwall."

GEN.

 GEN. XII.

 CHAMA.

Animal a TETHYS.

SHELL; bivalve, strong.

Hinge rugged, gibbous; teeth obliquely inserted into the opposite valve.

1

• COR.

Chama Cor. *Lin. Syst.* p. 1137.—*Gmel. Syst.* p. 3299. 1.

Chem. Conch. vii. t. 48. f. 483.

Lister Conch. t. 275. f. 111.—*Favan.* t. 53. G.

Gualt. t. 71. f. E.—*Turt. Lin.* iv. p. 244.

C. with a sub-globose, cordated, thick, strong shell; smooth, or slightly wrinkled transversely, covered with a yellowish-brown *epidermis*: *umbo* large, prominent, much contorted or incurvated, and turned to one side, not touching when the valves are closed: hinge strong; teeth flattish. Inside smooth, white; margin plain.

This shell received its name from its representing a heart when viewed sideways.

It

It is a curious species, and not noticed by any conchological writer as a *British* shell.

In the cabinet of Mr. SWAINSON are two, which were taken in the *British* seas; one nearly three inches in diameter from the coast of *Scotland*; the other, not above an inch and a half in diameter, was dredged up off the *North Foreland* by himself; and though destitute of the animal, was perfect, very recent, and in good preservation.

It is found about the *Hebrides*.

GEN.

GEN. XIII.

ARCA.

Animal a TETHYS.

SHELL; bivalve, equivalve.

Hinge; with many teeth, alternately locking between each other.

1.

PILOSA.

Arca pilosa.

Lin. Syst. p. 1143. 182.*Gmel. Syst.* p. 3314. 36.*Pult. Cat. Dorset.* p. 35.*Turt. Lin.* iv. p. 256.—*Gualt.* t. 73. A.*Chem. Conch.* vii. t. 57. f. 565. 566.*Lister Conch.* t. 247. f. 82.Arca Glycymeris. *Br. Zool.* t. 58. f. 58.*Don. Br. Shells.* ii. t. 37.*Lin. Trans.* vi. t. 18. f. 1. 2. (*Wood.*)Glycymeris orbicularis. *Da Costa* p. 168. t. 11. f. 2. 2.

A. with a strong, orbicular shell, covered with a dark brown, pilous *epidermis*, particularly about the margin; beneath this the older shells are sometimes of a rusty brown colour,

colour, others almost white, with zigzag, angular stripes of chesnut, or orange-yellow; in younger shells the markings are frequently of a carnation colour. It is faintly striated longitudinally, with transverse, antiquated wrinkles or ridges: *umbo* large, central, and not turned to either side. Inside white, with sometimes a little purplish-brown at one end; margin strongly crenated. Diameter two inches and a half, or more.

This species and the *Arca glycymeris* have been greatly confounded, and indeed it is not an easy matter to ascertain them by the synonyms of GMELIN.

LISTER has given a very good figure of this shell, and marks it as *English*, as well as from *Guernsey*; this however is quoted by GMELIN for his *Glycymeris*. We have had some doubt whether these two shells are actually distinct, and whether the variation may not be occasioned by climate. Doctor PULTENEY expressly says, they are totally different; we have therefore followed that able conchologist, in giving it as the *pilosa* of LINNÆUS.

This shell is in great abundance on the shore near *Pendennis Castle* in *Cornwall*, of a large size, but all worn and mutilated, as if driven from a considerable distance.

We have obtained it by dredging, on the south coast of *Devon*, but rarely alive, except small specimens: is also taken on the *Dorset* coast by dredging, at *Weymouth* and at *Swanage*; and we have received it from *Kent*.

T

Arca

2.
LACTEA.

- Arca lactea.* *Lin. Syst.* p. 1141. *Gmel. Syst.* p. 3309. 15.
Chem. Conch. vii. t. 55. f. 547.
Lister Conch. t. 235. f. 69.—*Petiv. Gaz.* t. 73. 1.
Da Costa p. 171. t. 11. f. 5. 5.
Turt. Lin. iv. p. 252.
- Arca barbata.* *Br. Zool.* No. 60. t. 58. f. 59. reference misplaced to *A. Nucleus*.
- Arca crinita.* *Pult. Cat. Dorset.* p. 34.

A. with a rhomboidal, yellowish-white shell, covered with a brown pilous *epidermis*, under which it is furnished with numerous fine, close-set, regular striae longitudinally, or from the *umbo* to the margin, with a few concentric wrinkles or ridges: the interstices between the striae are prettily punctured, giving the shell a reticulated appearance when examined by a lens: *umbo* not quite central; hinge furnished with numerous teeth. Inside white; margin plain.

This species is subject to great variety in shape, some are rounded at both ends, others angulated, or cut off at one end; and the striae, which are faint in some, are very strong in others, both transverse and longitudinal, crossing in a decussated manner; the transverse striae, however, are always least distinct.

Doctor PULTENEY has considered this shell as distinct from the *A. lactea* of LINNÆUS, observing that, that is much larger, and is strongly striated in a reticulated manner. *English* specimens, however, are sometimes reticulated

ticulated very conspicuously; and, if we make allowance for the various effects of climate, it may be conjectured this is only a variety in a depauperated state.

This shell is found in great abundance on some parts of the south coast of *Devon*; and not unfrequent on that of *Cornwall*, particularly about *Falmouth*; but live shells, or double valves with the *epidermis* on, are rare. It seldom exceeds half an inch in length; and three quarters in breadth.



Arca Noae.

Lin. Syst. p. 1140. 169.

3.

NOÆ.

Gmel. Syst. p. 3306. 2.

TAB. 4. f. 3. 3.

Chem. Conch. vii. t. 53. f. 531. a.

Turt. Lin. iv. p. 250.—*Gualt.* t. 87. H.

Musculus Matthioli. Lister Conch. t. 368.. f. 208.

Arca tortuosa.

Br. Zool. No. 57. figure omitted.

Borlase Corn. t. 28. f. 15. 16.

A. with a rhomboidal shell, the smaller end of each valve turning inwards to meet each other, forming a sharp angle, giving that end a sub-cordated appearance: the *umbo* is placed nearest to one side: the *apex* prominent, and greatly separated by a deep *fulcus*, which is smooth and glossy: the *striæ* that run from hinge to margin are regular and strong; these are crossed with fine, transverse *striæ*, that make the shell elegantly reticulated: some are marked with concentric, antiquated ridges: colour rufous-brown, lightest at the larger end. Inside whitish or

tinged with brown: hinge strait, furnished with numerous teeth.

We have found this singular species at *Milton* sands, on the south coast of *Devon*, but it is extremely rare. BORLASE first observed this to be an *English* shell, having found it at the lands-end in *Cornwall*, but speaks of it as rare. Those we found do not much exceed half an inch in breadth, which is about the size of the figure given by BORLASE.

Foreign specimens are much larger.

4.

MINUTA.

Arca minuta. *Gmel. Syst.* p. 3309. 14.—*Lin. Trans.* iii. p. 64?

Chem. Conch. x. t. 170. f. 1657. 1658.

Turt. Lin. iv. p. 252.

Arca Modiolus. *Walk. Min. Shells.* f. 81.

Adams Micros. t. 14. f. 43.

Arca caudata. *Don. Br. Shells* iii. t. 78.

A. with an oblong shell, the anterior side running into an angulated beak, cut off at the point; finely striated transversely, interrupted by three or four strong concentric ridges: colour white, or yellowish: *umbo* very small, turning a little towards the angulated side; beneath which is a smooth depression reaching to the end; this part is indented, which gives the produced side a reflexed appearance. Inside smooth, glossy; colour the same as the outside; teeth numerous, angulated, the angular sides placed towards

towards the *umbo*: immediately under the *apex* is a cavity, and a space destitute of teeth, dividing them into two series: margin plain. Length three-eighths of an inch; breadth scarce half an inch.

This curious and rare species we received from Mr. BOYS of *Sandwich*, for the shell figured by WALKER as above quoted, at which place it is not uncommon. Mr. WALKER considered this shell as the *A. Modiolus* of LINNÆUS. CHEMNITZ has given a tolerably good figure of this species, which GMELIN quotes as his *A. minuta*. Mr. ADAMS has given an *Arca minuta* in the *Linnean Transactions*, but from his short description, we cannot be confident it is the same. He says, "*Testa subrotunda: striis concentricis, margine integro. Color albus.*"



5.

Arca Nucleus *Lin. Syst.* p. 1143.—*Gmel. Syst.* p. 3314. 38. NUCLEUS.
Chem. Conch. vii. t. 58. f. 574. a. b.
Br. Zool. No. 59. figure erroneous.
Don. Br. Shells ii. t. 63.—*Turt. Lin.* iv. p. 257.
Pult. Cat. Dorset. p. 35.—*Gualt.* 88. R.
Lin. Trans. vi. t. 18. f. 3. 6. (*Wood.*)
Petiv. Gaz. t. 17. f. 9.

Glycymeris argentea. *Da Costa* p. 170. t. 15. f. 6. *dextra.*

A. with a sub-triangular, white shell, concentrically wrinkled, and crossed with numerous, minute, obsolete striæ from hinge to margin; covered with a glossy, olivaceous

aceous *epidermis*: *umbo* placed a little to one side, beneath which is a cordiform depression. Inside glossy, silvery white; hinge angular, beset with numerous, fine, regular teeth in a pectinated form: margin finely crenulated. Length three-eighths of an inch; breadth somewhat more.

This species is common on most of our sandy shores. Mr. PENNANT has by mistake referred to his *Arca barbata* for the figure of this shell.

 GEN. XIV.

 PECTEN.

Animal a TETHYS.

SHELL, bivalve, inequivalve, most times ribbed or striated longitudinally.

Hinge, toothless, with a small sub-triangular cavity; aurated.

Ostrea maxima. *Lin. Syst.* p. 1144.—*Gmel. Syst.* p. 3315. 1. MAXIMUS. 1.

Pult. Cat. Dorset. p. 35.

Chem. Conch. vii. t. 60. f. 585.

Lister Conch. t. 163. f. 1.—*Ib. Ang.* t. 5. f. 29.

Don. Br. Shells ii. t. 49.—*Turt. Lin.* iv. p. 258.

Gualt. t. 98. A. B.—t. 99. A.

Pecten maximus. *Br. Zool.* No. 61.

Pecten vulgaris. *Da Costa.* p. 140. t. 9. f. 3. 3.

P. with fourteen or fifteen rounded ribs, longitudinally grooved, and wrought with very fine, transverse striæ: upper valve flat, with a depression at the *umbo*; colour rufous; lower valve very convex, white, tinged with yellow;

yellow; auricles striated, equal, rectangular. Inside white, with rufous-brown round the margin. Length five inches; breadth six. It is sometimes found variegated with pink and brown.

This shell is not uncommon on some parts of our coast, and is frequently sold for the use of the table, being much esteemed. Is plentiful in *Salcomb* bay, in *Devonshire*, and in the sea between *Portland* and *Purbeck* in *Dorsetshire*.

We are informed by old and experienced dredgers, that the greatest quantity are taken after a fall of snow.

2.

JACOBÆUS.

Ostrea Jacobæa. *Lin. Syst.* p. 1144.—*Gmel. Syst.* p. 3316. 2.

Pult. Cat. Dorset. p. 36.

Turt. Lin. iv. p. 258.

Gualt. t. 99. B.—*Favan.* t. 54. L. 1.

Pecten Jacobi. *Chem. Conch.* vii. t. 60. f. 588. 589.

Lister Conch. t. 165. f. 2.—t. 166. f. 3.

Pecten Jacobæus. *Br. Zool.* t. 60. f. 62.

Da Costa. p. 143. No. 2.

P. with seventeen or eighteen, very convex, ribs; upper valve flat, rufous; the ribs rounded, finely striated transversely; with a smooth, whitish depression at the *umbo*: lower valve pure white; ribs angulated, or brought to a flat surface, strongly furrowed longitudinally, and marked with fine transverse striæ: auricles equal, rectangular, striated. Inside white, a little tinged with rufous at

at the margin. Length four inches; breadth five; rarely found so large in the *British* seas.

This species very much resembles the *P. maximus*, but the sides rise higher towards the hinge; and it is at once distinguished by the under valve being pure white; and by the flat, angulated ribs.

It is a rare shell, but has sometimes been dredged up on our coast, particularly in *Dorsetshire*, at *Poole* and at *Weymouth*; as we are assured by Doctor PULTENEY.

DA COSTA informs us he received it from the same coast, as well as from *Cornwall*, and *Scarborough* in *Yorkshire*.



3.

Ostrea opercularis. *Lin. Syst.* p. 1146.—*Gmel. Syst.* p. 3325. 51. OPERCULARIS.

Pult. Cat. Dorset. p. 36.

Turt. Lin. iv. p. 266.

Lister Conch. t. 190. f. 27. 28.—*Id. Ang.* t. 5. f. 30.

Pecten opercularis. *Chem. Conch.* vii. t. 67. f. 646.

Favan. t. 54. L. 2. 4.

Ostrea subrufus. *Don. Br. Shells* i. t. 12.

Pecten subrufus. *Br. Zool.* t. 60. f. 63.

Pecten pictus. *Da Costa* p. 144. t. 9. f. 1. 2. 4. 5.

Lin. Trans. vi. t. 18. f. 7. 8. (*Wood.*)

P. with a sub-orbicular shell, with about twenty rounded ribs, finely striated transversely: colour various, most frequently

quently white, beautifully variegated with red or purple; sometimes of one colour; white, yellow, brown, or purplish: the under valve most highly coloured; the upper valve is not so convex as the other: auricles nearly similar, striated. Inside white, in some parts a little tinged with brown. Diameter about two inches and a half.

This species is common on many parts of our coast: in *Devonshire* and *Cornwall* is frequently taken for culinary purposes; known by the name of *Frills* or *Queens*.

4.
VARIUS.

- Ostrea varia.* *Lin. Syst.* p. 1146.—*Gmel. Syst.* p. 3324. 48.
Pult. Cat. Dorset. p. 36.
Turt. Lin. iv. p. 265.
Don. Br. Shells i. t. 1. f. 1.—*Favan.* t. 54. B. 3. 4. 5.
Lister Conch. t. 178. f. 17. 18.
Gualt. t. 73. G.—t. 74. R.
Pecten varius. *Chem. Conch.* vii. t. 66. f. 633. 634.
Br. Zool. t. 61. f. 64.
Pecten Monotis. *Da Costa.* p. 151. t. 10. f. 1. 2. 4. 5. 7. 9.

P. with about twenty eight echinated ribs; colour various, sometimes like tortoise-shell, clouded dark chocolate-brown and yellow; others plain rufous-brown, or yellowish: upper valve less convex than the other; auricles very unequal, the longest ear on the superior valve is much wrinkled, the other striated lengthways: the whole shell is rough with concave spines, but least so towards the *umbo*; sometimes instead of spines it is imbricated on the ribs,

ribs, and only a little echinated about the sides. Immediately beneath the long ear of the superior valve, (which is not so broad as the corresponding one of the other valve) are a few teeth-like laminae; at this part the shell is incapable of closing. Inside partakes of the colour of the exterior, but lighter. Length two inches and a quarter; breadth two inches.

This is a common species, frequently dredged up with oysters on various parts of the coast.



Pecten lineatus. *Da Costa.* p. 147. t. 10. f. 8.

Ostrea lineata. *Pult. Cat. Dorset.* p. 36.

Don. Br. Shells. iv. t. 116.

5.
LINEATUS.

P. with a sub-orbicular shell, with eighteen narrow ribs; colour white, except the ridge of each rib, which is red on the upper valve: the lower valve is quite white; the interstices finely striated transversely; auricles nearly alike. Inside white. In shape this elegant species very much resembles the *P. opercularis*, one valve being a little more convex than the other; but the sides of this do not rise quite so high towards the ears, and the ribs are much finer; which, with the invariable red line upon the ridge of each, without any other markings, at once distinguishes it.

DoCTOR PULTENEY first noticed this shell on the *Dorsetshire* coast, and sent it to DA COSTA, who described it in his work. In the *Museum Portlandicum* was called by DoCTOR SOLANDER, *Pecten carinatus*.

We have found it in *Cornwall* and *Devonshire*, but is rather a scarce shell. Length rarely exceeds an inch and a half; breadth not quite so much.

6.
DISTORTUS.

Pecten distortus. *Da Costa* p. 148. t. 10. f. 3. 6.

Pecten Pufio. *Br. Zool.* No. 65.

Lister Conch. t. 172. f. 9.—t. 189. f. 23.

Id. Angl. p. 186. t. 5. f. 31.

Chem. Conch. vii. t. 67. f. 635. 636.

Ostrea Pufio. *Lin. Syst.* p. 1146?

Gmel. Syst. p. 3324. 49.?

Don. Br. Shells. i. t. 34.—*Turt. Lin.* iv. p. 266.

Ostrea distorta. *Pult. Cat. Dorset.* p. 36.

P. with a very distorted shell, with numerous, rib-like striæ, some of which are larger than others: the upper valve is, in general, much more flat than the inferior, but it is of so distorted a growth, that no two are found alike. The under valve, by which it adheres to rocks and old shells, partakes of all the inequalities of the part to which it is affixed; and scarce any ribs or striæ are to be found on that valve, except towards the *umbo*. The superior valve partakes of these irregularities more or less, though it is always striated, but frequently interrupted by swellings and depressions; and the striæ become undulated. In the more perfect shells the auricles are large, sometimes nearly equal; in others scarce any ears are observed: colour most commonly rufous-brown, or red and white mottled. It rarely exceeds two inches in length; and one inch and a half in breadth.

This

This singular species is not uncommon in the west of *England*, from *Dorsetshire* to *Cornwall*, but the lower valves are seldom thrown upon the shores: these adhere so strongly to rocks, as not to be easily separated; and lie generally in deep water: perfect shells, however, are sometimes obtained by dredging, affixed to the inside of old oyster shells.

We have seen it perforated into those massy stones used for fixing the mooring chains to, in *Plymouth* harbour; or at least so enclosed, that it became necessary to break off part of the stone to get them out.



7.

OBSOLETUS.

Pecten obsoletus. *Br. Zool.* t. 61. f. 66.

Don. Br. Shells. i. t. 1. f. 2.

Pecten parvus. *Da. Costa.* p. 153. No. 7.

Ostrea obsoleta. *Turt. Lin.* iv. p. 266.

P. with numerous, fine, longitudinal striae, eight or ten more prominent than the others, at irregular distances; the valves are equal, and rather flat: the auricles are unequal; one very large, striated, the other extremely small: colour dark purple. Inside smooth, brownish.

This species, which was first given by Mr. PENNANT, appears to be very rare. DA COSTA received his from the coast of *Cornwall*.

Pecten

8.

GLABER.

Pecten glaber. *Br. Zool.* No. 68.

P. with a very thin shell; fifteen faint rays; equal ears.

The inner side of the shells marked with rays, divided by a single *fulcus*.

Anglesea. A scarce species. Small.

We have been obliged to copy Mr. PENNANT's description of this shell, not having been fortunate enough ever to meet with it. The description does not sufficiently correspond with the *Ostrea glabra* of LINNÆUS, to induce us to think it is the same species.

9.

LÆVIS.

TAB. 4. f. 4.

Pecten lævis. *Br. Zool.* No. 67Ostrea lævis. *Turt. Lin.* iv. p. 266.

P. with a flat, sub-orbicular, thin, pellucid shell, perfectly smooth, except a few faint concentric ridges: valves nearly equal; auricles strongly striated lengthways, crossed with very fine striæ; one ear much longer than the other: colour yellowish-white. Inside glossy white. Length five-eighths of an inch; breadth not quite so much.

Mr. PENNANT seems to be the only author who has given this species; found in *Anglesea*. We have found it at *Falmouth*, rarely: our finest specimen was dredged up alive, from *Salcomb* bay in *Devonshire*; this is of a pale, dull, orange-yellow.

GEN.

 GEN. XV.

 OSTREA.

Animal a TETHYS.

SHELL, bivalve, inequivalve, rugged or plated; no auricles.

Hinge toothless, with a transverse, striated cavity.

1.

Ostrea edulis. *Lin. Syst.* p. 1148.—*Gmel. Syst.* p. 3334. 105. EDULIS.

Chem. Conch. viii. t. 74. f. 682.

Gualt. t. 102. A. B.—*Br. Zool.* No. 69.

Lister Conch. t. 193. f. 30.—t. 194. f. 31.

Id. Angl. t. 4 f. 26.—*Pult. Cat. Dorset.* p. 36.

Turt. Lin. iv. p. 274.—*Favan.* t. 80. C.

Lin. Trans. vi. t. 18. f. 9. 10. (*Wood.*)

Ostreum vulgare *Da Costa.* p. 154. t. 11. f. 6.

O. with a sub-orbicular, rugged shell, with plates or folds lying over each other: generally of a brown colour.

This species, so well known, requires little description: it varies greatly in shape and size, according to the situation

tion in which it is found: some have very strong, thick, ponderous shells; others are thin, with membranaceous plates or laminæ, obscurely and irregularly striated.

A pretty variety is found in *Salcomb* bay in *Devonshire*, with a very thin shell, with large membranaceous plates, wrinkled into irregular, interrupted ribs: the upper valve flat, or rather concave on the top, with a corneous margin, half an inch broad, extremely thin and brittle: the lower valve convex, clouded with pale purple, particularly round the margin. These are called *Rock oysters*, and vary so much from others, taken from a different part of the same bay, that they appear like a distinct species; and are very unlike those which are cultivated for the *London* markets; they are generally of an orbicular shape; with the *umbo* pointed, and central. Diameter about three inches and a half.

It is the nature of *oysters* in general to have the lower valve fixed to rocks, or loose stones, and frequently to each other; but this is not the case with the variety just described, in consequence their shape is more regular.

The appellation of *Rock oyster* seems to be given it by the fishermen, because they are taken on rocky ground.

For an account of the taking, breeding, and management of *oysters*, in order to supply the tables of the luxurious, we refer our readers to the *British Zoology*; DALE's *History of Harwich*; and DA COSTA's *British Conchology*; which

which is extracted from Bishop SPRAT's *History of the Royal Society*, p. 307.

2.

STRIATA.

Ostrea striata. *Pult. Cat. Dorset.* p. 36.

Don. Br. Shells. ii. t. 45.

Turt. Lin. iv. p. 275.

Ostreum striatum. *Da Costa.* p. 162. t. 11. f. 4. 4.

Lister Conch. t. 202. 203. f. 36. 37.

Ib. Angl. t. 4 f. 27.

O. with a sub-orbicular shell, marked with fine, irregular, undulated, longitudinal, rib-like striæ; *umbo* very small, placed near the top, a little surrounded by the margin: superior valve less convex than the inferior: colour white. Inside smooth, glossy white, with a pearly hue; the hinge is a small cavity under the beak; a little below which is an opaque, chalky white spot, of an oval shape. Diameter rarely exceeds one inch and a half.

This species is subject to great variety in shape like the common oyster, and is frequently distorted and sinuous; but is never plated or laminated like that shell. Small specimens are often strongly ribbed with smaller intermediate striæ, and the margin angulated by the ribs; colour mottled, faint rufous-brown and white.

This shell, which was first noticed by Doctor LISTER, is not unfrequently found on some parts of our coast; but mostly single valves, and by far the greatest part that of the under or concave: these having lost the striæ by being much worn, are sometimes confounded for the *Anomia Ehippium*.

X

GEN.

 GEN. XVI.

 ANOMIA.

Animal not reducible to any hitherto found in a molluscous state.

It appears to be different in some species of *Anomia*, as may be seen by comparing that of the *Cepa* figured by MURRAY in his *Fundamenta Testaceologiæ*, t. 2. f. 23. and the *tridentata*, so called by FORSKAL, in his *Icones Animalium*, t. 6. 40.

The animal of the *A. patelliformis* seems to be different from either of these, by the description LINNÆUS has given of it.

SHELL, bivalve, inequivalve; one valve usually flat, the other convex: in several species the flat valve is perforated near the hinge, through which the animal is immovably fixed by a testaceous plug to some other body.

Hinge toothless: a transverse, linear prominence on the flat valve, connected under the beak of the opposite valve by a strong cartilage.

Anomia

Anomia Ehippium. *Lin. Syst.* p. 1150.—*Gmel. Syst.* p. 3340.3. **EPHIPPIUM.**

Chem. Conch. viii. t. 76. f. 692. 693.

Lister Conch. t. 204. f. 33.

Br. Zool. t. 62.—*Gualt.* t. 97. B.

Don. Br. Shells i. t. 26.

Lin. Trans. vi. t. 18. f. 11. 12. (*Wood.*)

Turt. Lin. iv. p. 280.—*Favan.* t. 41. B.

Anomia Tunica Cepæ *Da Costa* p. 165. t. 11. f. 3.

Anomia Cepa. *Lin. Syst.* p. 1151?—*Gmel. Syst.* p. 3341?

Chem. Conch. viii. t. 76. f. 694. 695.

Pult. Cat. Dorset. p. 37.—*Id. rosea*

A. with a sub-orbicular, irregularly wrinkled, waved, and sinuous shell: one valve convex, the other flat, and perforated at the hinge, by which it adheres to other bodies, particularly oysters; taking the impression of whatever it is affixed to. We have seen very elegant, pellucid, compressed specimens, taken from the *Pecten maximus*, of a large size, with all the impressions of the ribs; sometimes longitudinal, in others transverse; and which is communicated to the upper valve. Inside pearlaceous, glossed with green, purple, violet, or yellow; with all the intermediate shades.

The *Anomia Cepa* of LINNÆUS is probably only a variety of this shell, strongly coloured in the inside.

It is very common on most of our shores, but rarely perfect, unless dredged up alive. Diameter sometimes three inches and a half; most frequently not above two inches.

The testaceous plug by which the animal fixes itself to other substances, is firmly attached by strong ligaments to the body; and so closely cemented, or united to whatever it is affixed, that they become inseparable; and of course when the shell is forced from its native place, the plug is left behind upon the stone or shell to which it adhered.

2.

SQUAMULA.

Anomia Squamula. *Lin. Syst.* p.1151.—*Gmel. Syst.* p.3341.6.
Chem. Conch. viii. t. 77. f. 696.
Br. Zool. No.71.—*Walk. Min. Shells* f.80.
Da Costa. p. 167.
Adams. Microsc. t. 14. f. 42.
Pult. Cat. Dorset. p. 37.
Turt. Lin. iv. p. 281.

A. with a sub-orbicular shell, not unlike the last, but considerably more thin and membranous; in general much compressed; the perforated valve quite flat, the other sometimes a little convex: colour dirty white when alive. Inside white, or tinged with green. This, like the preceding species, takes the impression of whatever it adheres to; and very pretty specimens are obtained from some of the *Pectens*.

Frequent on oysters, lobsters, crabs, and other marine bodies. Is distinguished from the young of the *A. Ehippium* by being smooth, and by the small pointed beak or *umbo*; is also much more flat. Diameter rarely exceeding half an inch.

Anomia

Anomia aculeata. *Gmel. Syst.* p. 3346. 30.

Chem. Conch. viii. t. 77. f. 702,

Turt. Lin. iv. p. 285.

Gualt. t. 97. B. lower figure.

A. with a thin, compressed, muricated shell, with interrupted, longitudinal striæ, furnished with small, concave, obtuse spines: beak small, turning a little downwards: under valve flat, generally plain, but sometimes a little echinated towards the margin; perforated near the hinge. Diameter three-eighths of an inch; most frequently not so large on our coasts.

We have found this species in *Devonshire* and *Cornwall*, adhering to the roots of *algæ*: most commonly of a dirty white or brownish colour.



Anomia undulata.

Gmel. Syst. p. 3346. 34.

UNDULATA.

Turt. Lin. iv. p. 286.

TAB. 4. f. 6.

Anomia undulatim striata. *Chem. Conch.* t. 77. f. 699.

A. with an extremely delicate, thin, pellucid, flat shell, of a sub-orbicular shape, with numerous undulated rib-like striæ, radiating from the *umbo*: beak small, pointed, placed a little within the margin; lower valve almost membranaceous, plain; perforation near the hinge, large, oval. Inside pearlaceous. Diameter about an inch.

This species, like others of the genus, is subject to vary in shape, depending intirely on the body to which it is af-
fixed

fixed. It is sometimes found on the south coast of *Devon*; the finest specimens we have taken by dredging in *Salcomb* bay, adhering to the inside of old bivalve shells, especially the *Cardium lævigatum*.

These have the under valve convex, and the upper valve flat, or somewhat concave; but when the surface is flat to which they adhere, the lower one conforms to it, and the upper one becomes a little convex.

A variety is marked with rufous-brown between the ribs, towards the margin.

This shell differs from the *aculeata* in being larger, more pellucid, and in the ribs or striae being more distant, undulated, and never furnished with spines.

 GEN. XVII.

 MYTILUS.

Animal allied to an ASCIDIA.

SHELL, bivalve; in some species affixed by a thick filky *byssus*.

Hinge without teeth, marked by a longitudinal furrow: in some species crenulated.

- 1.
- Mytilus edulis. *Lin. Syst.* p. 1157. EDULIS.
Gmel. Syst. p. 3353. 11.
Chem. Conch. viii. t. 84. f. 750. 751.
List. Conch. t. 362. f. 200.—*Id. Ang.* t. 4. f. 28
Br. Zool. No. 73.—*Turt. Lin.* iv. p. 291.
Pult. Cat. Dorset. p. 38.
Lin. Trans. vi. t. 18. f. 13. 14. (*Wood.*)
Gualt. t. 91. E.

Mytilus vulgaris. *Da Costa.* p. 216. t. 15. f. 5.

M. with an oblong shell, somewhat pointed at the beak; sides very much sloped; anterior side a little angulated; posterior rather indented: colour blackish-blue, covered with

with a brown *epidermis*; sometimes radiated with fine blue. Inside blue about the margin, whitish in the middle: beneath the beak are several teeth-like crenulations. Length three inches; breadth one and a half.

This is the most common of all *British* shells, found in vast beds fixed by the *byssus*.

2.

INCURVATUS.

Mytilus incurvatus. *Br. Zool.* t. 64. f. 74.

Lister Conch. t. 357. f. 195. 196.

Turt. Lin. iv. p. 292.

This shell is very like the last, but broader in proportion to its length: the posterior side much incurvated: crenulations under the beak the same.

Whether this is really a distinct species may be doubted. It is usually found fixed into some crevice of a rock singly, and not in beds like the *edulis*. Many appear distorted about the beak, as if the shell was prevented in its growth by accident; and we think the intermediate gradations, between this and the preceeding, bring them so near together, as scarce to allow a specific distinction. It is however of a very inferior size, seldom exceeding an inch and a half in length; and one inch broad.

3.

PELLUCIDUS.

Mytilus pellucidus. *Br. Zool.* t. 63. f. 75.—*Turt. Lin.* iv. p. 292.

Chem. Conch. viii. t. 84. f. 755.

M. with a thin, pellucid shell, of a whitish colour, or tinged

tinged with blue, more or less radiated with deep blue or purple, covered with a yellow *epidermis*. In shape it resembles the *edulis*, but not so much indented at the posterior side, and is much more smooth and glossy. Inside glossy, blueish-white, rayed with blue like the outside; crenulations beneath the beak small. Length about two inches; breadth one inch.

This species does not appear to be common.

Mr. PENNANT says, it is found in *Anglesea*, sometimes in *Oyster-beds*; sometimes in trowling over stutchy bottoms.

We have found it sufficiently plentiful on the shore near *Southampton*; but rarely elsewhere.



4.

Mytilus barbatus. *Lin. Syst.* p.1156.—*Gmel. Syst.* p.3353.10. BARBATUS.

Chem. Conch. viii. t. 84. f. 749.

Pult. Cat. Dorset. p. 38.

Don. Br. Shells. ii. t. 70.

Gualt. t. 91. H. middle figure.

Mytilus curtus. *Br. Zool.* t. 64. f. 76. A.

Turt. Lin. iv. p. 292.

M. with a thin, sub-pellucid, sub-ovate, oblong shell, covered with a ferruginous-yellow *epidermis*, beset with a thick beard about the front margin, and on the anterior side, mixed with sand, broken shells, and other extraneous matter: the posterior side, towards the beak, extends outwards a little, and rises above the *umbo*, which gives it

Y

a

a sub-arcuated appearance. Inside white; margin under the beak quite smooth. Length rarely exceeds two inches; breadth one inch.

DA COSTA makes no mention of this species. Mr. PENNANT speaks of it from *Weymouth*, from whence we have been favoured with it by Mr. BRYER. Doctor PULTENEY also states it to be on the *Dorsetshire* coast; and expresses some doubt whether it is not the young of the *M. Modiolus*.

With respect to the shape of these two shells, they certainly are extremely similar, but in colour they are essentially different; besides, the *Modiolus* is never found bearded, is always of a dusky-black colour, and grows to a very superior size. On the other hand, it must be admitted that young shells sometimes differ materially in colour; and that, as we never have seen any other which could be considered as the young of that shell, doubts must be entertained.

We have found this species in *Cornwall* and in *Devonshire* rarely, and have received it from *Sandwich* in *Kent*; but it does not appear common any where.

A variety is faintly radiated.

The rough, or bearded, appearance of this shell is occasioned, in part, by the *epidermis* being broken and divided into fibres, which in a soft, and glutinous state, arrests such extraneous matter as comes in contact.

Mytilus

Mytilus Modiolus. *Lin. Syst.* p. 1158.—*Gmel. Syst.* p. 3354. 14. MODIOLUS.

Chem. Conch. viii. t. 85. f. 757.

Lister Conch. t. 356. f. 195.—t. 359. f. 198.

Br. Zool. t. 66. f. 77.

Turt. Lin. iv. p. 293.

Da Costa p. 219. t. 15. f. 5.

Pult. Cat. Dorset. p. 38.

Don. Br. Shells. i. t. 23.

M. with an oblong, sub-oval, strong shell, covered with a thick, purplish-black *epidermis*; shape like the last, but more concentrically wrinkled.

It is a very convex shell; the *umbo* large and prominent: Inside smooth, pearly.

This is a large species, sometimes growing to the length of six inches, and near three inches in breadth; but more usually about four inches long, and two broad.

It is a *pelagic* shell, and rarely taken even by dredging, except in very deep water; but is sometimes caught by the hook in fishing for whiting, or other fish, near the ground.

DA COSTA says it is found at *Scarborough*, and on the coast of *Wales*, as well as in the *Orkneys*, and other coasts of *Scotland*; and also in *Kent* and *Cornwall*.

We have found it rarely in *Devonshire*; and according to DOCTOR PULTENEY's account, has been dredged up at

Weymouth. This species is furnished with a large silky *byssus*, not unlike that of the *Pinna*, but of a coarser texture, by which it adheres firmly to the bottom; and when taken by dredging is usually torn from the animal. We have taken the Pea-crab, *Cancer Pisum*, and two minute crabs, *Cancer minutus*, from one of these muscles; the former of an unusual size.

6.

UMBILICATUS.

Mytilus umbilicatus Br. Zool. t. 65. f. 76.

Don. Br. Shells ii. t. 40.

Turt. Lin. iv. p. 292.

Mytilus curvirostratus. Da Costa. p. 220.

M. with a thick, strong, oblong, sub-oval shell, in shape much like the two preceding; but is at once distinguished by a deep depression, or *umbilicus*, under the beak, opposite the hinge, which is singularly intorted and wrinkled: colour dark brown, or blackish. Length rarely above four inches.

Mr. PENNANT, who first described this species; says it is sometimes dredged up off *Priestholme Island*, and that it sometimes grows to the length of five inches. And adds, that the pea-crab is found in this shell of a larger size than usual. It is a very rare shell, and seldom found but in the place before mentioned.

7.

RUGOSUS.

Mytilus rugosus. Lin. Syst. p. 1156.—Gmel. Syst. p. 3352. 7.

Br. Zool. t. 63. f. 72.—Turt. Lin. iv. p. 290.

Mytilus

Mytilus rugosus. *Da Costa.* p. 223.

Pult. Cat. Dorset. p. 37.

Lister Conch. t. 426. f. 267.

Id. Angl. t. 4. f. 21.

M. with an oblong, sub-oval shell, with rugged, concentric wrinkles: colour dirty-white, covered with a yellowish *epidermis*: side next to the hinge always rounded; the opposite sometimes truncated: *umbo* small, obtuse, placed near to one end. Inside white. It rarely exceeds an inch and a quarter in length; breadth about half its length: is however very subject to vary in shape; some are very little longer than they are broad, others exceed the breadth nearly three times, and so convex as to be almost cylindric. It most usually gapes at one end, and sometimes in the front, opposite the hinge.

This species is found on many of our coasts, burrowed in lime-stone, in great abundance: is not uncommon on some parts of the coast of *Devon*, in company with the *Donax Irus*, particularly about *Plymouth*, and at *Torbay*.



8.

M. with an oblong, irregular, rugose shell, wrinkled, and frequently much distorted: commonly so much the shape of the *Solen minutus*, as to be easily confounded for a worn shell of that species, having lost the spines; others resemble the *Mytilus rugosus*. The particular characters are, that the hinge is close to one end, which side is quite square as if cut off; the beak large, prominent, and projects

PRÆCISUS.

TAB. 4. f. 2.

jects further in one valve than the other; which valve is rather largest, and receives the other within its margin, particularly at the opposite end from the hinge. In some both ends are truncated: colour dirty white, frequently covered with a brown *epidermis*. Inside white, hinge rough, strong, inflected, forming a deep cavity underneath the margin. Length, from hinge to the opposite margin, a quarter of an inch, breadth half an inch, but usually much less; though we have one specimen full three-quarters of an inch wide.

This species is found on some parts of the *Cornish* coast, and we have seen it burrowed in lime-stone at *Plymouth*; but is most commonly met with at the roots of *Algæ*, not unfrequently on many parts of the coast of *South Devon*, as well as at *Ilfracomb* in the north of that county: and we have received it from *Wales*.

It is readily distinguished from the young of the *M. rugosus* by the larger end being truncated, and not rounded, and by the valves being unequal.

9.

CRISTA GALLI.

Mytilus Crista Galli. *Lin. Syst.* p. 1155.*Gmel. Syst.* p. 3350. 1.*Chem. Conch.* viii. t. 75. f. 683. 684.*Id.* t. 73. f. 675—*Gualt.* t. 104. f. E.*Turt. Lin.* iv. p. 289.

M. with a rude, rugged, compressed shell, varying so much in shape as not to form any fixed character: colour
opaque

opaque, ferruginous, or dull purple. Margin scolloped, or cut into deep, irregular notches, on both valves, corresponding with each other, so as to be inserted, and shut close. Inside white, or tinged with ferruginous: beneath the hinge, in the superior valve, slightly crenulated. Diameter two inches and a half.

This species, though as yet not ascertained to breed in this climate, has been found alive adhering to the bottom of ships; and possibly may become naturalized, as well as the *Teredo navalis*, which was first introduced in the same manner, and now become formidable in some of our harbours.

Is common in *India*, and in the *Red Sea*.



10.

- Mytilus discors. *Lin. Syst.* p. 1159.—*Gmel. Syst.* p. 3356. 21. DISCORS.
Chem. Conch. viii. t. 86. f. 764. 767.
Da. Costa. p. 221. t. 17. f. 1.
Walk. Min. Shells. f. 79.
Adams. Micr. t. 14. f. 41.
Pult. Cat. Dorset. p. 38.
Don. Br. Shells. i. t. 25.—*Turt. Lin.* iv. p. 294.

M. with a very convex, sub-cordated, pellucid shell; the posterior and anterior sides longitudinally ribbed or striated, broader and stronger on the former: the middle area is plain, or faintly wrinkled transversely: *umbo* large, prominent; *apex* turned much to one side, and placed

placed close to the larger end; the anterior side is somewhat pointed: colour white, mottled with pink, or pale red; but these colours are, in a recent state, obscured by an olive-green, glossy *epidermis*. Inside white, or tinged with pink; margin crenated on the part which is ribbed.

We have found this species sparingly on the coast of *Cornwall* and *Devonshire*: adhering very strongly to the lower part of the stalks of *Algæ*, and frequently so enveloped by the bark or film of the plant, as to appear like a knot or swelling; the smaller end of the shell, however, is generally uncovered, or it might pass unnoticed.

Doct^r PULTENEY speaks of having found a cluster of these muscles, adhering to the *Ascidia Mentula* of GMELIN, at *Weymouth*, from which DA COSTA took his description. The Doct^r afterwards saw them on *Oysters*, from *Poole* and *Swanage*.

We have received specimens from Mr BRYER of *Weymouth*, completely enveloped by the *epidermis*, or skin of the *Ascidia* before mentioned, except a small corrugated opening: two or three were so fixed to the same animal, adhering strongly by their *byssus*. This circumstance is not uncommon on the coast of *Devonshire*, where we have seen that animal studded with *M. discors*.

It differs only in size, and being of a lighter colour, from those first introduced into *England* by Captain Cook,
from

from the *South Seas*, which were an inch and a half in breadth; whereas the *British* specimens rarely exceed half an inch in breadth, and three-eighths of an inch in length.

This shell has frequently been confounded with the following species, from which it is perfectly distinct, as may be seen by the comparative description there given.



11.

M. with a sub-oval, compressed, pellucid, thin, brittle DISCREPANS. shell, covered with an olive-green *epidermis*: and, like the preceding species, is divided into three compartments, the posterior and anterior sides ribbed, or striated longitudinally; the middle area slightly wrinkled: *umbo* placed as the last, but very little prominent: both sides rounded, the anterior one largest. Inside white, with a faint pearly gloss. Inferior in size to the preceding.

The singular structure of this and the *M. discors*, so much resemble each other, at first sight, that the essential specific characters have been overlooked: and we once received a specimen of each from a friend, an able conchologist, for the same shell.

The principal distinctions are, that this is very little convex, whereas the other is nearly as thick as it is broad; this is rounded, and broadest at the anterior side; the other is smallest on that side, and runs out to an obtuse point:

Z

it

it has only eight, or nine, clearly defined ribs, on the side next to the beak; whereas the other has double that number; which character is invariable: and this is never otherwise than of an uniform colour, without spots or markings of any kind. No author seems to have distinguished this species, although so essentially different from the *M. discors*.

We found this shell alive on the shore between *Southampton* and the mouth of the *Itchin*, in vast abundance; and not uncommon at *Ilfracomb* in *Devonshire*, in the holes or crevices of the rocks, and among various marine plants, near high-water mark; have also received it from the south coast of *Wales*.

This is always found detached, and never buried in animal or vegetable substances, like the *discors*; though it frequently adheres slightly by its *byssus*.

12.
CYGNEUS.

Mytilus Cygneus. *Lin. Syst.* p. 1158.—*Gmel. Syst.* p. 3355.
Lister Conch. t. 156. f. 11.
Chem. Conch. viii. t. 86. f. 762.
Br. Zool. t. 67. f. 78.—*Da Costa* p. 214.
Pult. Cat. Dorset. p. 38.—*Gualt.* t. 7. F.
Don. Br. Shells. ii. t. 55.
Turt. Lin. iv. p. 293.
Muller p. 208. No. 394.
Schroet Flussconch. t. 3. f. 1.

M. with

M. with a thin, fragile, semi-pellucid, oval shell, wrinkled concentrically, and covered with an olivaceous-green *epidermis*: *umbo* very small, placed near to one end. Inside glossy pearly-white. Length rather more than two inches and a half; breadth near six inches.

This is the largest of the *British* fresh-water shells. Inhabits dull, deep rivers; but rarely found so large as in ponds and stagnant waters.

It bears great affinity to the *M. Anatinus*, and has, by some, been considered as the same: the material distinction is, that this is vastly superior in size, more convex, broader in proportion to its length, and does not rise so high at the hinge; though both shells are compressed at that part.

It must however be allowed, that the specific characters of distinction are not strong: and much is to be depended on the circumstance, of their being frequently found in separate places: and that this is not near so common.



13.

Mytilus Anatinus. *Lin. Syst.* p. 1153.—*Gmel. Syst.* p. 3355. 16. ANATINUS.

Chem. Conch. viii. t. 86. f. 763.

Lister Conch. t. 153. f. 8.—*Id. Angl.* t. 2. f. 29.

Schroet. Flussconch. t. 1. f. 2. 3.

Muller verm. p. 207. No. 393.

Petiv. Gaz. t. 93. f. 8. 9.

Br. Zool. t. 68. f. 79.—*Turt. Lin.* iv. p. 293.

Da Costa p. 215. t. 15. f. 2.

Mytilus Anatinus. *Don. Br. Shells*. iv. t. 113.

Pult. Cat. Dorset. p. 38.

M. with a thin, semi-pellucid, oval shell, very like the *M. Cygneus*, but usually of a greener colour, less convex, and the margin at the hinge more prominent, rising into a sort of angulated wing. Length two inches; breadth three and a half.

This species inhabits rivers, and other fresh-waters; is very plentiful, and frequently found where the *M. Cygneus* is not.

13.
AVONENSIS.

Musculus angustior, sub-fuscus, paulo crassior. *Lister Conch.*
t. 154. f. 9?

M. with a sub-oval shell, of an olivaceous-brown colour, with concentric wrinkles: size of the *M. Anatinus*, but broader in proportion to its length, and not so produced at the hinge; the posterior side generally more obtuse, and rounded; the front margin nearly straight, or frequently sub-arcuated, particularly towards the smaller end.

In these particulars it seems to differ essentially from either the *M. Cygneus* or *Anatinus*, and is much less like either, than those shells are to each other.

This shell we found in great abundance in the river *Avon*, about *Lackham*, in *Wiltshire*, where it is much more plentiful than the *Anatinus*.

Possibly

Possibly it has been confounded with that shell, but we never found it except at the place before mentioned. It is not in general so thin as the preceding species; in shape corresponds very well with LISTER's figure of the shell here quoted, but in general is more strait on the front margin, close to the posterior side, and frequently makes an angle at that part.



15.

Mytilus striatus umbonibus productis. Walk. Min. Shells. f. 75. STRIATUS.

The striated muscle with lengthened beaks.

The colour pellucid white. From *Reculver* and *Sandwich* not uncommon. Minute.

We are not quite certain, that this species described by Mr. WALKER has ever come under our inspection; but have sometimes met with a shell, not very unlike the figure given, except that it had not any conspicuous longitudinal striæ, and which we have considered as the fry of the *M. Modiolus*, or *M. curtus*.

We shall here take the liberty of remarking, that very great attention is requisite to discriminate some of the minute bivalve shells, and separate them from the bivalve *Monoculi*.

The great affinity that the coverings, or shells, of some of this class of insects, bear to the testacea tribe, has in all probability

probability caused many to have been considered as small species of *Mytilus*, or the fry of larger; for many such *Monoculi* are capable of shutting their valves intirely, and inclosing every part of the animal: in which state they always are when dead, so that it is no easy matter to discriminate.

Mr. WALKER is not the only one who has fallen into this error, in his figures 76, 77, and 78, all of which we have received from *Sandwich*, and have found them in other parts.

The first is found in fresh-water, and is not much unlike *Monoculus conchaceus*, GMELIN *Syst.* p. 3003, but is longer, in proportion to its breadth, than the figure given of that insect by DONOVAN, *British Insects*, i. t. 5.

The other two, given by Mr. WALKER, are marine *Monoculi*; both found on *Oysters*, and other rugged shells; and is not uncommon on the coast of *Devon*: especially No. 77, about the *byssus* of the *Pinna ingens*: both these appear to differ only in shape, and do not seem to have obtained a place amongst the *apterous* insects. When examined under a microscope, the shells are punctured all over.

To these supposed *Mytili* of Mr. WALKER, we may add the *Monoculus conchaceus*, which has been sent to us for such; and we could enumerate many others, which inhabit

inhabit both salt and fresh-water, that might readily be mistaken for minute shells: one of which is figured in Tab. 14 No. 8. of this work by mistake, not having an opportunity of examining the animal till after the plate was engraved.

This, and another species of *Monoculus* in every respect like it, but of a longer and more cylindric shape, is found on *Oysters* on the south coast of *Devonshire*; and on the *byssus* of the *Pinna ingens*; a general repository for *Monoculi* and very minute shells, especially *Nautili* and *Vermiculi*.

These two species of *Monoculus* are extremely smooth, and glossy, of a blush-colour when alive, or fresh, and opaque yellowish-white when dead; and are distinguished from any other, by the remarkable *sinus* in front, near the end, through which is a groove or channel; but this perforation is only to be distinguished when the valves are laid open. Had GMELIN made any mention of this singular structure, we should have been inclined to think these were his *M. luteus* and *M. flavidus*:* but as we have not at present an opportunity of consulting the figures of those insects given in MULLER, must leave the matter to be decided by entomologists; craving pardon for this digression.

We cannot however quit the subject without remarking, that the surest distinction between the shells of the bivalve
Monoculi

* The *antennæ* indeed of the one figured in this work was not simple, but composed of several bristles.

Monoculi and the minute bivalve *testacea* is, that the latter always, more or less, possess some concentric wrinkles or annulations of growth, as well as some appearance of *umbo* or beak: such therefore, which are destitute of these marks, may with confidence be referred to the former,

If any such doubtful objects are put into water, even after the animal has been long dead and dried; and when softened, the valves carefully opened with the point of a fine needle, and afterwards put into a drop of water under a microscope; the *antennæ* and legs will soon appear, if a *Monoculus*.

 GEN, XVIII.

 PINNA.

Animal an ASCIDIA?

SHELL, bivalve, fragile, gaping at one end; and furnished with a filky *byssus* or beard.

Hinge, without a tooth; valves connected on one side, nearly the whole length.

LINNÆUS, on the authority of HASSELQUIST, calls the animal of the *Pinna* a *Limax*, or *Slug*: in this he has most certainly been mistaken, as it has not the smallest affinity; but appears more allied to the animal of the *Mytilus*.

It seems to be intirely destitute of locomotion, remaining immovably fixed by its *byssus* to other bodies; and so firmly attached, that it cannot be disengaged at the will of the animal, as the fibres are agglutinated to the gravel, sand, roots of marine plants, broken shells, and other extraneous matter, within its reach.

A a

The

The *Pinna* has been long celebrated for giving protection to a small species of crab, and which was supposed to be of great use to the animal, by giving it notice either of approaching danger or of its prey.

These stories, however, as handed down to us from earlier times, are not wholly unfounded, but mixed with too much fable to be fully credited in these more enlightened days. The shell of the *Pinna*, as well as many others, becomes the habitation of some small species of crab, which seems to live in harmony with the animal inhabitant. It is however remarkable, that in not less than fifty of the *Pinna ingens* we opened, not a single crab was found; and yet in the only specimen of *Mytilus Modiolus*, taken in the same place, no less than three crabs were found alive within the shell.

The ancients equally celebrated this shell for its silky *byssus*, from which they made the most costly vestments: even modern travellers assure us, gloves and stockings are manufactured from the beard of this animal at *Palermo*, *Naples*, and *Taranto*.

1.

PECTINATA.

Pinna pectinata. *Lin. Syst.* p. 1160.—*Gmel. Syst.* p. 3363. 2.

Chem. Conch. viii. t. 87. f. 770.

Pult. Cat. Dorset. p. 39.—*Gualt.* 79. C?

Turt. Lin. iv. p. 301.

Pinna fragilis. *Br. Zool.* t. 69. f. 80?

Pinna muricata. *Da Costa.* p. 240. t. 16. f. 3.

Don. Br. Shells. i. t. 10.

P. with

P. with a pellucid, thin, brittle shell, of a light horn-colour, darker towards the beak, where it is faintly varied with purple and blueish-green; it is marked with about eleven longitudinal striæ, or rather ribs, the whole length from the *apex* to the opposite margin, furnished with concave spines, encreasing in size at the larger end; about one third of the shell, on the side opposite the hinge, is destitute of ribs; and is finely striated obliquely to the ribs, on which the spines are very small, and the concave sides turn outwards; the hinge side is nearly strait, turning a little towards the beak: the other side bends a little inward under the beak, and is somewhat convex in the middle. Breadth three inches at the gaping end, which is somewhat rounded; length six inches and a half, tapering to the *apex*; the hinge side rather the longest. Inside smooth, with a pearly hue: beneath the *apex* several transverse, cartilaginous laminæ.

A shell of the above size we received from a friend, who took it in trawling off the *Edystone* near *Plymouth*: It is sometimes taken by the fishermen about *Torbay* and on the *Dorsetshire* coast; and we have seen it from the coast of *Sussex*; but most times of a small size, not exceeding three or four inches in length.

DA COSTA was certainly mistaken, in making this the *P. muricata* of LINNÆUS; that has been found in *England* rarely, according to the Catalogue of *Dorset* shells by Doctor PULTENEY, and is perfectly distinct.

2.
INGENS.

Pinna ingens. *Br. Zool.* No.81.—*Lister Conch.* t.372. f.213?

P. with a very rugged shell, with irregular, concentric wrinkles, running lengthways from the beak at the open side, and turning to the hinge nearly at right angles; sometimes breaking into laminae or plates: from the beak run a few interrupted striae, which crossing the wrinkles, sometimes form on the broader part of the shell, a few distant concave spines: but these must be considered as varieties, for in general it is destitute of any inclination to be echinated. In the spined variety it is observable, that the striae, or ribs from which the prickles arise, are never above seven or eight, remote from each other; these spines however, are only found on very young shells. With age it is subject to be much distorted, and is indented in various parts, as well as on the margin: but the most perfect, and regular grown shells, are nearly straight from the beak along the hinge, turning a little inwards at the *apex*: on the opposite side, under the beak, it is concave or indented; beneath which it swells out, and increases gradually to the larger end, and is always longer on that side than on the other: the larger end is a little rounded, but is more angular next the hinge. Large and old shells are of a dark, and rather opaque horn-colour: smaller ones paler and more diaphanous; all more or less of a changeable green, at the smaller end. Inside smooth, glossy, and of a pearly hue; laminated at the beak: valves connected the whole length.

This

This species is not uncommonly twelve inches long; and seven inches broad at the gaping end.

The principal distinction between the young and the *P. pectinata* consists, in this being more wrinkled, broader in proportion to its length, shortest on that side where the hinge is placed; and in such possessed of spines, these as well as the ribs, are less numerous, and more distant.

Mr. PENNANT seems to be the only one who has made mention of this shell, and that under the denomination of *Pinna ingens*. He says, "I saw specimens of some vast "*Pinnæ*, found amongst the farther *Hebrides*, in the collection of Doctor WALKER, at *Moffat*. They were very "rugged on the outside, but I cannot recollect whether "they were of the kind found in the *Mediterranean* or "*West Indies*."

LISTER's shell, here quoted, is much like this in shape; but that seems to be furnished all over with small spines, or scales, which renders it doubtful.

We discovered a bed of these shells in *Salcomb* bay, in *Devonshire*; where they are called by the fishermen *French Muscles* or *Scallops*.

They lie on a gravelly bottom covered with mud, and long sea-weeds; and are only to be got, at particular times, when the sea recedes farther than usual.

They

They stand upright, with the large end about an inch above the surface; the lower end fixed by a very large, strong *byssus*, so firmly attached to the gravel, that much force is required to draw them up; and most commonly the *byssus* is left behind. This beard is composed of numerous, fine, silk-like fibres, of a dark purplish-brown, two or three inches in length. The larger end of the shell is naturally a little open, and cannot be closed by art, but the animal is capable of effecting it: the beaks of the valves rarely cover each other exactly.

Some of these shells have been taken annually for many years, the animal having been accounted very good food; but they require at least five or six hours stewing, to render them eatable: if this is properly attended to, they are nearly as good as *Scallops*, but never so tender.

The bank, on which these shells are found, probably increases, so that the water leaves a greater part bare, at every spring tide, than formerly; and in consequence they become an easy prey to *Crows* and *Gulls*: few are now to be obtained, but at some unusual low tide.

We have taken them of all sizes, from one inch to one foot in length, and from their general habit cannot liken them to any of the *Linnæan* species. One of the largest, after the animal was taken out, weighed seventeen ounces. The animal is very disproportionate to the shell, not occupying one half of it.

That

That this shell has been found on other parts of the *British* coast, of a small size, is undoubted; for we have seen it in more cabinets than one, confounded with the *P. pectinata*: and we are partly inclined to believe the figure of the *P. fragilis* in the *British Zoology*, was taken from a small shell of this species; by its superior breadth, and being destitute of spines.

Pinna muricata. *Lin. Syst.* p. 1160.—*Gmel. Syst.* p. 3364. 4.
Chem. Conch. viii. t. 87. f. 769.
Gualt. 79. B?—*Pult. Cat. Dorset.* p. 39.
Turt. Lin. iv. p. 301.

3.
 MURICATA.
 TAB. 5. f. 3.

P. with a thin, brittle, semi-pellucid, flesh-coloured shell, darkest at the smaller end: with ten or twelve broad ribs running longitudinally the whole length, and a few intermediate small ones at the narrow end; beset sparingly with concave prickles towards the larger end, generally at the extremity: the hinge side is quite strait; opposite side a little inflexed, and not so long: rounded at the gaping end.

Doct^r PULTENEY, who favoured us with a specimen of this species, from the coast of *Dorsetshire*, for the *P. muricata* of LINNÆUS, says, it has been dredged up at *Weymouth*; and that it is five or six inches long, by two or three wide. Our specimen was only four inches long. Young shells are nearly smooth, and destitute of spines.

This

This shell differs from the *P. pectinata* in colour, and in the ribs being much larger, straiter, more distant, and covering the whole shell. Whether it is really the *muricata* may perhaps be doubted, but we have been induced to follow so experienced and able a conchologist, notwithstanding the synonyms of Gmelin and Chemnitz do not accord with ours. In the latter author is a very good figure of our shell, differing very little from that we were favoured with by the Doctor, except in being rather more spinous.

DIV. III.

UNIVALVE SHELLS.

GEN. XIX.

NAUTILUS.
*Animal much in obscurity.**Rumpf. Mus. t. 17. f. B.*

SHELL, univalve, composed of concamerations, or cells, communicating with each other by a small aperture, or tube.

We shall in this place remark, that all the species of this genus, hereafter described, are minutely small, the *lacustris* excepted; the extreme beauty, or singularity of which, is only to be seen under a microscope.

The animal inhabitant, is at present so little known, that it has not obtained a place in the *System of Nature*, and in all probability, is very various.

B b

To

To our worthy friend Mr. Boys, of *Sandwich*, we are greatly indebted for the knowledge of many of this curious genus: by whose assistance we have been able to identify most of those given by WALKER, in his *Testacea minuta rariora*.

1.

BECCARII.

Nautilus Beccarii. *Lin. Syst.* p.1162.—*Gmel. Syst.* p.3370.4.
Turt. Lin. iv. p. 306.—*Planch.* t. 1. f. 1.
Walk. Min. Shells. f.63.—*Favan.* t.69.D.1.
Martini Conch. i. t. 19. f.178. 179.—t.20.
 f. 175. to 177.—*Gualt.* t. 19. f. H.H.I.
Adams Microsc. p. 640. t. 14. f. 29.

N. with four, or five volutions; with deep fulcated joints; ten in the first spire: upper part convex: beneath flat, and the markings less distinct: mouth turned downwards, not clasping the body whirl: aperture a small perforation in a convex front: in this part, however, it appears to be subject to variation; for in some we have examined, the front, or part in which the syphon is placed, has been depressed or concave.

The colour is frequently pellucid white, but more commonly covered with a brown *epidermis*; this, however, depends on the situation in which they are found: when the animal is alive, the pellucid specimens appear of a crimson colour.

Found frequent on the *Fucus vesiculosus*, and on the roots of other *Algæ*, as well as on *Oysters* and other shells:
 and

and seems to be a pretty universal, littoral shell, being found in numbers at *Rimino*, and in the sand of the *South Seas*.



Nautilus Beccarii perversus. *Walk. Min. Shells*. f. 64.
Favan. t. 7. B. 2.

2.
BECCARII PER-
VERSUS.

N. with the spires reversed; in every other respect like the preceding species, with which it is frequently found, and is equally plentiful on our coasts.

FAVANNE evidently means this shell, (though he quotes the *Beccarii* of LINNÆUS,) as he particularly remarks its volutions turn from right to left.



Nautilus crispus. *Lin. Syst.* p. 1162.—*Gmel. Syst.* p. 3370. 3. CRISPUS.
Turt. Lin. iv. p. 306.—*Gualt.* t. 19. f. A. D.
Walk. Min. Shells. f. 65.—*Planch.* t. 1. f. 2.
Martini Conch. t. 20. f. 172. f. 174.
Favan. t. 69. D. 2.—*Id.* t. 7. B. 1.
Adams. Microsc. p. 640. t. 14. f. 30.

3.

N. with lateral spires, with about twenty flexuous, crenated joints in the exterior whirl, marked by elevated striæ; outer edge carinated; interior volutions occult: aperture clasping the body, semi-cordate, furnished with a small perforation, or syphon.

Bb 2

This

This is a most elegant species, when examined under a microscope; both sides are uniform; the aperture equal, and perfectly lateral.

It is not uncommon, with the two last, at *Sandwich*, and *Sheppey* island: we have found it also at *Teignmouth* and *Salcomb*, in *Devonshire*, particularly on *Oysters*, and with the two preceding species, lodged in the *byssus* of the *Pinna ingens*. Are equally abundant on the shores of *Weymouth* and *Swanage*, in *Dorsetshire*, and on other parts of that coast: have received it also from the south coast of *Wales*.

4.

LÆVIGATULUS.

Nautilus spiralis geniculis lævibus. Walk. Min. Shells. f. 67.

Nautilus lævigatulus. Turt. Lin. iv. p. 306.—Gualt. t. 19. B?

Adams Microsc. p. 641. t. 14. f. 32.

Martini Conch. i. t. 19. f. 168?

N. spiral, with smooth joints; colour semi-pellucid, white, and glossy.

To this very concise description Mr. WALKER adds, that it is found at *Sandwich* and *Seafalter*, but not common.

We must confess this shell appears to be in great obscurity, at least nothing like the figure, or description, has come under our examination. In a drawing we received from Mr. BOYS, with a reference to this shell of WALKER, and

and to a specimen sent at the same time, (which we consider as the *N. Calcar*,) there was nothing in appearance like the figure of the *N. lævigatulus*, which is neither described or figured as carinated.



Nautilus Calcar *Lin. Syst.* p. 1162.—*Gmel. Syst.* p. 3370. 2. CALCAR.

Turt. Lin. iv. p. 306.

5.
Tab. 15. f. 4.

Martini Conch. t. 20. f. 180. 181 ?

Walk. Min. Shells. f. 66 ?

Adams Microsc. p. 641. t. 14. f. 31 ?

N. with a smooth, spiral shell; with six joints on the body whirl, marked by as many flexuous elevated striae, radiating from the centre, but not quite extending to the margin: back strongly carinated: both sides equally convex, smooth, and rather more elevated in the middle: interior volutions lost after entering the aperture, which is semi-cordate, clasping the body equally on both sides, and furnished with a small perforation.

It is perhaps very difficult to determine which of the various species, given by different authors for the *N. Calcar* of LINNÆUS, is the real shell: GMELIN quotes two figures in MARTINI, that appear perfectly distinct, vol. i. tab. 19. fig. 168. 169. the first of which is smooth on the back; the other is not only strongly carinated, but furnished with spines on that part. The same figures also occur in GUALTIERI, t. 19. B. C. and are equally referred to by GMELIN: that we have quoted in MARTINI for our shell, is indeed with doubt, for in all we have examined, the

Carina

Carina was regular, smooth, and even; not undulated as there represented, nor is the centre furnished with such elevated knobs.

The figure given by WALKER for the *N. Calcar*, appears to be our shell in a mutilated state; that part of the body whirl which enters the mouth, having been broken, gives the aperture a very extended appearance. Such an appearance accident has thrown in our way, and therefore we are inclined to think, that the figure above quoted in WALKER, was taken from an imperfect specimen of our shell. Much allowance indeed must be made, for the figures of such minute objects, highly magnified under a microscope; the eye which examines, and the pencil which delineates them, will occasionally vary: indeed, we perceive so considerable a difference between the original drawings of this, and other shells of Mr. WALKER, and the engravings taken from them, that we should scarce have known them to be the same; had they not been marked with the same numbers.

6.

DEPRESSULUS.

Nautilus: spiralis, utrinque subumbilicatus, geniculis depressis plurimis. *Walk. Min. Shells. f. 68.*

Nautilus depressulus. Turt. Lin. iv. p. 306.

Adams Microsc. p. 641. t. 14. f. 33.

N. with a spiral, sub-umbilicated shell, with many depressed joints; colour opaque white.

From *Reculver*: very rare.

Nautilus

Nautilus: spiralis, umbilicatus, geniculis fulcatis. *Walk.* UMBILICATULUS
Min. Shells. f. 69.

Nautilus umbilicatus. *Turt. Lin.* iv. p. 306.
Adams Microsc. p. 641. t. 14. f. 34.

N. with a spiral, umbilicated shell, with furrowed joints: colour opaque white.

From *Sandwich*: not common.

Nautilus: crassus, utrinque umbilicatus, geniculis lineatis. CRASSULUS.
Walk. Min. Shells. f. 70.

Nautilus crassulus. *Turt. Lin.* iv. p. 306.
Adams. Microsc. p. 641. t. 14. f. 35.
Martini. Conch. i. t. 19. f. 171?

N. with a thick, spiral, doubly umbilicated shell, with fine joints; colour opaque white.

From *Reculver*: exceeding rare.

This, and the two preceding species, never having come under our examination, we have been obliged to borrow their description from Mr. WALKER.

Nautilus lacustris. *Phil Trans.* LXXVI. t. 1. (*Lightfoot.*) LACUSTRIS.
Helix lineata. *Walk. Min. Shells.* f. 28. Tab. 6. f. 3.
Helix nitida. *Gmel. Syst.* p. 3624?—*Turt. Lin.* iv. p. 511.
Schroet Flussconch. t. 5. f. 27?

N. with

N. with a compressed, sub-carinated, spiral, smooth, glossy, pellucid, horn-coloured shell; sometimes rufous-brown: the upper side convex; *apex* depressed, concave, with three visible volutions, and a fourth lost in the depression; these are bordered on their outer edge with an opaque, whitish line, or band, that runs spirally to the centre at the junction of the whirls: under side flat, and deeply umbilicated: concamerations distant; joints or divisions, only three visible in the exterior volution; these are nearly equidistant, and appear like so many curved, white lines, radiating from the *Umbilicus*, and are the shades of the *septa*, or plates that divide the chambers.

The first of these divisions is placed a considerable way within the aperture, the third at about two-thirds the circumference: between the first two divisions is sometimes a strong wrinkle, of a deeper colour than the rest of the shell: aperture narrow, sub-cordate, clasping the body whirl on both sides nearly equal; but the edge, or margin, slopes obliquely to the flat or under side. Diameter two-tenths, rarely a quarter, of an inch.

Mr. WALKER was the first who noticed this shell, but had overlooked the very singular structure of its internal parts; and indeed we might have supposed he had intended the *Helix fontana*, but that he expressly says, "The lineated snail, with two central, white lines, crossing the *Umbilicus*. These are the two most conspicuous divisions; and, frequently has no other perceptible ones.

Mr. LIGHT-

Mr. LIGHTFOOT has well described, and given good figures of both these shells, in the *Philosophical Transactions* of 1786, in which he says, this has three or four white lines, which appear like rays from the central *Umbilicus*, to different and nearly equidistant, parts of the circumference.

We have not, however, yet met with a specimen, that had more than three divisions in the body volution, and sometimes one in the second whirl, not very distant from the line of the mouth: possibly these may encrease with age.

The *septa* or partitions of the cells do not exactly accord with Mr. LIGHTFOOT's description: the aperture, or opening, in these partitions, is indeed triradiated, but the *septa* are not formed of one piece, but of three sub-triangular plates, each perfectly distinct, and unattached to each other. Two of these are placed laterally; even with each other, on the sides; the third is an elevated ridge on the interior volution, standing before the other plates, and not in a line with them; but, projecting inwards, gives the opening the appearance described in a front view.

This formation of the *septa* is indeed expressed, by the sections of the shell that gentleman has given.

This very singular and curious shell, though different from any known species of *Nautilus* in the formation of the *septa*, (which are usually of one, compact plate, with

a tubular perforation) cannot, however, be placed in any other genus with so much propriety. Possibly many of the minute species of *Nautili*, would be found to be various in the structure of the *septa*, and some not possessed of tubular apertures, could we dissect them with perspicuity: so that the formation of the aperture in the *septa*, had better be considered (as Mr. LIGHTFOOT justly observes) a specific, rather than a generic, character.

This may, therefore, be accounted as the only species of fresh water *Nautilus* hitherto noticed.

The animal is an aquatic *Limax*, or *Slug*; it has two very long, slender, filiform *tentacula*: at the base of which are two eyes, placed on the head, not on their summits, and retractile, as in those of the land kind.

When the animal extends itself, the head, tail, and part of the body, are protruded through the triradiated aperture, each at a separate part; the head at that of the middle ray: after it is dead, it contracts within the two outer *septa*, but never as we could observe, beyond the third; which makes that division always obscure.

Mr. WALKER speaks of its being found on flags, in *Hernhill* brooks, in *Kent*: it is also met with about *Sandwich*, from which place we have received it from Mr. BOYS.

Mr. LIGHT-

Mr. LIGHTFOOT says, in deep ditches of clear water, adhering to the roots of *Carices*; and that it was collected near *Upton* church, not far from *Eton*, in *Buckinghamshire*.

It is also found in the neighbourhood of *London*, as we have been informed by Mr. SWAINSON, who favoured us with many specimens taken on water plants, in ditches in the marshes about *Rotherhithe*, where it is not unfrequent.

It appears Doctor SOLANDER was acquainted with this shell, as he returned it to Mr. BOYS by the name of *Nautilus Segmentinus*, previous to the publication of the *Minute Shells* by WALKER; and of course before it was described as a *Nautilus* by LIGHTFOOT.



10.

Nautilus oblongus carinatus apertura lineari ovali. Walk. CARINATULUS.

Min. Shells. f. 72.

Nautilus carinatus. Turt. *Lin.* iv. p. 307.

Adams Microsc. p. 642. t. 14. f. 37.

N. with an oblong, carinated shell, with a narrow, oval aperture: colour whitish, transparent like glass.

From *Seafalter* and *Sandwich*: very rare.

Such is Mr. WALKER's description; but he does not seem to have well expressed it by the figure, if we may judge from a very good drawing we have been favoured with from Mr. BOYS. In this the joints are seven, the extreme one, though globose, is not a quarter the breadth

C c 2

of

of those near the aperture: the joints too, regularly decrease in size, from the mouth to the end: the back is arched, but does not appear carinated.

We should certainly have considered this a distinct species, had there not been a reference on the drawing, to WALKER's figure; and as we have never had an opportunity of examining either of the shells, we dare not venture to give it a distinct place.

11.

SEMILITUUS.

Nautilus femilituus.

Gmel. Syst. p. 3372. 12.*Turt. Lin.* iv. p. 308.*Walk. Min. Shells.* f. 73.*Martini Conch.* i. t. 20. f. 186. 187.Nautilus subarcuatulus. *Adams. Microsc.* p. 642. t. 14. f. 38.*Turt. Lin.* iv. p. 307.

N. with an elongated, sub-arcuated shell, with elevated joints; *apex* incurvated: aperture with a small, produced *Syphon*: colour opaque brown.

From *Sandwich* and *Sheppey* island; rare.

Mr. WALKER's figure does not express the produced *syphon*, and is much too large at that part; whereas, it tapers considerably from the middle towards the aperture, and the *syphon* is placed nearly in a line with the back, or outer margin.

We were obliged to Mr. Boys for fine specimens of this shell, as well as a very correct drawing, referring to WALKER's figure.

Nautilus

Nautilus rectus geniculis depressis. Walk. Min. Shells. f. 74. RECTUS.

Nautilus Legumen. Gmel. Syst. p. 3373 ?—Gualt. t. 19. P ?

Turt. Lin. iv. p. 309 ?

Martini Conch. i. vig. 1. f. E. e ?

N. with a strait, or very little arcuated shell, with smooth joints: smaller at the posterior extremity than at the mouth: aperture a small *syphon*.

From *Sandwich*; very rare.

A specimen of this shell, favoured us by Mr. Boys, was a small matter arcuated, of an opaque-brown colour: length about one tenth of an inch: the external part had scarce any appearance of its being concamerated, but one side being ground, eight or nine distinct chambers appeared. The shell is very thick and strong for its size: though Mr. WALKER says, pellucid white.

We have very little doubt this is the *N. Legumen* of GMELIN, although neither the specimen before us, nor the figure given by WALKER, has any appearance of being marginated.



Nautilus Radicula. Lin. Syst. p. 1164. —Gmel. Syst. p. 3373. 18. RADICULA.

Turt. Lin. iv. p. 309.

Martini Conch. i. vig. i. G. G. g.

Tab. 6. f. 4.

Tab. 14. f. 6.

N. with a sub-conic, elongated shell, with eight or nine sub-globose articulations: smooth, opaque-brown; aperture a small *syphon*. From *Sandwich*; and varieties with from two to five joints.

This

This species appears to be subject to very considerable variation, with respect to the shape of the extreme joint at each end, as well as in the number: in some the aperture is extended to a conic point; in others it is only a small, round opening on the extreme articulation, which is globose: the smaller end in some, is rounded; in others, conic, pointed.

14.

SUBARCUATUS.

Tab. 6. f. 5.

N. with a sub-cylindric, sub-arcuated shell, with three conspicuous, globose articulations at the larger end: the remaining joints scarcely defined: aperture a small, produced *syphon*: colour pellucid, glossy white, sometimes covered with a brown *epidermis*. Length one tenth of an inch.

Mr. Boys favoured us with specimens of this shell from *Sandwich*, and with them a drawing of what we consider a variety, differing only in having ten distinct articulations; the extreme one at the smaller end longer than either of the others, except the anterior one, in which the aperture is placed.

15.

JUGOSUS.

Tab. 14. f. 4.

Nautilus obliquus. *Gmel. Syst.* p. 3372. 14?

Turt. Lin. p. 308?—*Gualt.* t. 19. N?

Martini Conch. i. vig. i. f. H. h?

N. with a sub-arcuated, sub-cylindric shell, a little tapering: with nine, ridged, sub-globose articulations: aperture extended to a small conic *syphon*: the extreme joint,
at

at the smaller end, longer than the others near it: colour opaque-brown. Length more than one eighth of an inch.

This shell, which we received from Mr. Boys, differs from *N. subarcuatus* in being longitudinally striated, or ridged: in other respects the shape is similar to the variety described, of that species.

We are inclined to think this may be a variety of the *N. obliquus* of those authors quoted: the only difference appears to consist in that being truncated at the anterior end, and crenated round the margin, instead of being produced to a conic *syphon*. Such a variety would not be more extraordinary, if we consider the variation incident to the *N. Radicula*: and indeed, the figure of the *N. obliquus*, given by MARTINI, is exactly what our shell would be, if the conic part, of the anterior articulation, was cut off. It is, therefore, very probable the *N. obliquus*, as generally described, is nothing more than a variety, or more probably a mutilated specimen, of this shell.



N. with a stait, sub-cylindric shell, a little tapering; with twelve raised articulations, furnished with four equidistant, strong, longitudinal ribs, running the whole length of the shell: aperture extended in a conic *syphon*. Length a quarter of an inch.

16.

COSTATUS.

Tab. 14. f. 5.

Mr. Boys favoured us with an excellent drawing of this new, and curious shell, found on the coast of Kent: and with it, a variety with only six joints.

GEN.

GEN. XX.

CYPRÆA.

Animal a LIMAX.

SHELL, univalve; involuted, sub-ovate, obtuse, smooth.

Aperture, linear, extended the whole length of the shell, dentated on both sides.

1.
PEDICULUS.

Cypræa Pediculus. *Lin. Syst.* p. 1180?

Gmel. Syst. p. 3418. 93?

Don. Br. Shells. ii. t. 43.

Turt. Lin. iv. p. 345.

Cypræa Pediculus, seu Monacha. *Da Costa.* p. 33. t. 2. f. 6. 6.

Borlase Cornw. t. 28. f. 12. — *Gualt.* t. 15 R.

Pult. Cat. Dorset. p. 39?

C. with an oval, glossy shell, tumid or raised on the back, surrounded transversely with elevated striæ, which terminate within the lips, giving them a crenated appearance; the surrounding striæ in some places divided by intermediate shorter ones, or else bifurcated; colour pale purple, with generally, three dark spots on the ridge of the

the back, the middle one frequently very faintly marked; outer lip and under part white. Length five-eighths of an inch.

This species, which is not uncommon on many of our shores, has generally been considered as a variety of the *Pediculus* of LINNÆUS; a shell very common in the *West Indian* seas; but we cannot help expressing some doubts respecting this matter.

We believe this is never found to possess that sulcus along the back, so invariable in the foreign ones: the colour of that shell too is different, and the spots are generally six, three on each side the dorsal depression.

Those, who have described this sulcus as a character in the *British* specimens, have certainly confounded them with foreign shells; for in the thousands we have examined from various parts of our coast; no such circumstance has ever occurred. The finest coloured, and largest, of these shells, we ever saw, were dredged up alive in *Salcomb* bay; those frequently found dead on the shores have generally lost their purple colour, or only faintly tinged.

Cypræa arctica. *Pult. Cat. Dorset.* p. 39.

Martini. Conch. i. t. 29. f. 309.

List. Conch. t. 707. f. 57.—*Id. Angl.* t. 3. f. 17.

Borlase Cornw. t. 28. f. 13.—*Gualt.* t. 14 O.P.

Cypræa Pediculus. *Br. Zool.* t. 70. f. 82.

2.

ARCTICA.

D. d

C. with

C. with a very pale, purplish, flesh-coloured shell, much like the preceding, but smaller and destitute of spots.

Whether this is really a distinct species, or only the young, or variety of the other, is very difficult to determine: all we can say is, that it is more common on our shores, and is frequently found where the other is not; and in some places, where the other is dredged up alive, we have not been able to procure a single specimen of this. It must, however, be remarked, gradations are sometimes observed, that run so much into each other, as to create strong suspicion of this being the same species.

It was separated by Doctor SOLANDER, who gave it the name we have here prefixed to it, in the *Museum Portlandicum*.

3.

BULLATA.

Tab. 6. f. 1.

C. with a thin, pellucid, white shell, in shape much like the, *C. Pediculus*; some are quite destitute of transverse striae; others are faintly striated half way from the back to the inner lip, the other half to the outer lip marked with extremely fine longitudinal striae: the margin of the outer lip is not thickened, the edge finely crenated: the inner lip, even of those which are quite smooth, is a little denticulated: the *apex* is somewhat produced and formed into two or three small convolutions: in some the volutions are well defined by a separating line, in others they are nearly even.

Doctor

Doct^r PULTENEY informed us he had long possessed this shell in his Cabinet, and had called it *Cypræa Bullata*; which name we have retained. Whether it may be specifically distinct from the *Pediculus* admits of some doubt, as in some instances the transverse striæ surround the shell, though almost obsolete: the external volutions and the transparency of the shell, certainly bespeak distinction: to which we must add, that it is nearly equal in size, and consequently cannot be a young unformed shell: besides, we never found it but in *Salcomb* bay, except a single instance at *Falmouth* in *Cornwall*.

We have taken more than a dozen alive, by dredging, of different sizes, from a quarter to half an inch in length.

In that part of those which are transversely striated is a little purple tinge.



4.
C. with a conoid, convoluted shell, of a pale greenish VOLUTA colour, with the outer lip white: extreme volutions two, Tab. 6. f. 7. 7. very small; aperture linear, terminated by a groove, or gutter; both lips denticulated, the inner one but faintly; *Columella* sub-plicated. It is a very strong thick shell, with a beautiful polish, and quite smooth; the outer lip much thickened, with sometimes along the under edge, and both angles of the aperture a flight tinge of pink. Length not quite half an inch.

This elegant species has never before been given as an *English* shell; but we have seen it amongst a parcel of small shells from the *West Indies*: and Doctor PULTENEY informed us, it was in the *Portland* Cabinet by the name of *Voluta edentula*. It does not however appear to have so much the character of that genus as of this, but may be considered as a connecting link. How it came to obtain the trivial name of *edentula* is not easily determined, as it is denticulated on both sides of the aperture.

This shell is certainly very rare; the only place we have found it in, is *Salcomb* bay, where it is sometimes taken alive by the *Oyster* dredgers; but is never found on the contiguous shores.

The animal, when alive, extends a thin membrane from each side the aperture, and almost covers the shell; this is elegantly speckled with bright yellow: the more fleshy parts of the body, before and behind, are speckled with pink.

It is probable many of the *Cypræa* genus, have the property of extending these lateral membranes over their shell, the *C. Pediculus* has it to a great degree, and when in motion under water, has a very elegant appearance, from its diversity of colours: generally black, orange, and pink, disposed in minute spots.

GEN.

GEN. XXI.

BULLA.

*The Animal was considered by LINNÆUS as
a LIMAX,*

But later observations have proved, that whatever the animal may be, it is not a *Limax* in several species of the *Linnæan Bullæ*. For an account of the animal of *Bulla lignaria*, we refer the curious to the second volume of the *Linnæan Transactions*, page 15.

SHELL, univalve, convoluted, smooth.

Aperture for the most part somewhat contracted, oblong, longitudinal, the base entire.

Columella, smooth, oblique.

1.

- Bulla lignaria*. *Lin. Syst.* p. 1184. — *Gmel. Syst.* p. 3425. 11. LIGNARIA.
Lister Conch. t. 714. f. 71. — *Br. Zool.* t. 70. f. 83.
Martini Conch. i. t. 21. f. 194. 195.
Borlase Corn. t. 28. f. 14. — *Lin. Transf.* ii. t. 2. f. 18.
Da Costa p. 26. t. 1. f. 9. — *Turt. Lin.* iv. p. 351.
Pult. Cat. Dorset. p. 40.

B. with

B. with an oval, thin, brittle, sub-pellucid, yellowish-brown shell, with numerous transverse striæ, of a lighter colour; in some approaching nearly to white, giving it the appearance of a piece of veined wood.

It has no external volution, but at the top is depressed into a *sub-umbilicus*: aperture large, extending the whole length of the shell, but contracts somewhat at the upper part. Inside glossy white; *Columella* visible to the end.

This is the largest species of *Bulla* found in *England*: it sometimes grows to nearly two inches in length, but more commonly not exceeding one inch and a half.

We have obtained this shell in *Cornwall* and *Devonshire* rarely: and we are informed it is sometimes dredged up at *Weymouth*; but is by no means plentiful any where.

This is not the only species of *Bulla* whose inhabitant possesses a gizzard of a testaceous nature.

2.

AMPULLA.

Tab. 7. f. 1.

Bulla Ampulla. *Lin. Syst.* p. 1183.—*Gmel. Syst.* p. 3424. 10.

Martini Conch. i. t. 22. f. 202. 204.—*Id.* t. 21. f. 188. 189.

Br. Zool. No. 84.—*Turt. Lin.* iv. p. 350.

Gualt. t. 12. E. F.—*Favan.* t. 27. F. 6.

Petiv. Gaz. t. 50. f. 13. & t. 99. f. 14.

B. with an oblong oval, smooth, glossy shell, of an opaque whitish colour, mottled and veined with light chestnut:

chestnut: no external volution, but in its place an *Umbilicus*: aperture moderately wide: on the lower end of the pillar lip the shell is thickened, of an opaque white colour; but this duplicature does not spread up the body of the shell, as in the *B. lignaria*: *Columella* not visible to the end. We found two or three of this species in sand from *Falmouth* harbour, the largest not above three-eighths of an inch in length: foreign specimens grow to a much superior size. Possibly this is the same as described by Mr. PENNANT for a young shell of the *B. Ampulla*; who says it was found near *Weymouth*. DA COSTA has considered Mr. PENNANT's shell as his *B. Navicula*, the *Hydatis* of LINNÆUS.



Bulla patula. *Br. Zool.* t. 70. f. 85. A.

Pult. Cat. Dorset. p. 40.

3.
PATULA.

B. with a smooth, glossy, white, pellucid, oblong, involuted shell, upper end extending beyond the body; base more extended; aperture large, terminating in a short canal or gutter at each end, most contracted at the top: *Columella* twisted, forming a *sub-umbilicus* or furrow on the pillar lip: outer lip plain, and very thin. Mr. PENNANT first described this species from the *Portland Cabinet*, taken at *Weymouth*. Doctor PULTENEY favoured us with a specimen from the same place, the length of which is an inch, breadth half an inch.

The animal belonging to this shell is said to possess a gizzard, similar to that of the *Lignaria*.

Bulla

4.

APERTA.

Bulla aperta. *Lin. Syst.* p. 1183.—*Gmel. Syst.* p. 3424. 8.

Martini Conch. i. p. 266. vig. 13. f. 3.

Chem. Conch. x. t. 146. f. 1354. 1355.

Pult. Cat. Dorset. p. 40.

Turt. Lin. iv. p. 350.—*Gualt.* t. 13. E. E.

Don Br. Shells. iv. t. 120. f. 1. 1.

Bulla, the Bubble, *Da Costa*, p. 30. t. 2. f. 3.

B. with a sub-orbicular, thin, pellucid, brittle, white shell: no external convolution or *Umbilicus*: *Columella*, or rather inner lip, very small, slightly involuted, visible to the end: the aperture occupies nearly the whole of the shell: the outside is a little wrinkled, but glossy.

This species has generally been considered as rare on our shores: DA COSTA was the first who gave it as *English*, and says it is fished up at *Weymouth*; and no where else, to his knowledge, on the *British* coast.

That author, however, seems to have confounded the *B. aperta* with the *B. patula* of PENNANT, (which as yet we believe has only been found on the *Dorsetshire* coast,) as he has quoted that shell for this; whereas this species is not mentioned in the *British Zoology*; nor was that shell known to DA COSTA. GMELIN and CHEMNITZ have followed DA COSTA's error.

Its usual size does not much exceed half an inch in length; but on the north coast of *Devon*, about *Biddeford* bay (where it is extremely plentiful) it is no uncommon thing

thing to find them of an inch in length, and three-quarters of an inch broad.

We have also found it of an inferior size on the opposite shores in *Wales*, particularly about *Laugharne*: rarely in *Cornwall*, *South Devon*, and *Dorsetshire*, about *Weymouth*, and on *Studland* beach, between *Swanage* and *Poole*. It is not uncommon on some parts of the coast of *Kent*, at *Sandwich*, and *Whitstable* bay, from whence we have received it with the animal, but not large.

The inhabitants of many of the *Bullæ* are larger than their shells, so that they cannot wholly recede within them: in this and the two following species the animal has all the appearance of being truly molluscous, enclosing the shell so entirely, that no part of it is to be seen.

MARTINI has badly figured several views of the animal, separate and attached to the shell, in the table above quoted; with figures of the testaceous plates found within the body, which constitute the stomach or gizzard.

PLANCUS has also described the animal, and has given a figure of the shell. Appendix, Tab. xi. fig. F. G.

The animal is rather a shapeless mass, of a sub-oval form; pellucid white, with numerous minute, opaque specks: no visible eyes, or *tentacula*; the anterior end rounded, but capable of variation: a shield, with a mem-

E c

branaceous

branaceous margin in front, covers the anterior half, divided longitudinally by a pellucid streak: another sort of shield covers the hind part, and extends into a membranous margin, making four lobes; the body, on each side, runs into an angle, pointing backward, close to the posterior shield. Beneath, the animal is divided into two parts; that before is the *Sustentaculum*, behind which is the membrane that forms the lobated end; and which is capable of extending laterally, and becoming quite even; the lobes being only formed by folds; on the posterior shield above, are a few streaks of opaque white.

Length of the largest examined, an inch and a half; breadth one inch; length of the shell rather more than half an inch.

The gizzard, or stomach, is large in proportion, of a prismatic shape, composed of three testaceous plates, two of which are of an inequi-lateral, sub-triangular form, and exactly similar; the other is smaller, of an ovate-oblong, inclining to lozenge-shape, with the angles rounded; these are concave on the outside, and united together by strong cartilages.

The circumstance of some of the animal inhabitants of this class of shells being furnished with testaceous stomachs, has been noticed by others, and indeed seems to have inclined some persons to an opinion, that no shell can be a *Bulla*, but where its inhabitant is possessed of this testaceous organ of digestion.

We

We shall however take the liberty of remarking, that this system will not hold good with respect to Conchology, where the shells, and not the animals, have been classed: could we examine the animal inhabitant of every species of shell, we should find that, on the present arrangement, some in each genus would differ from the generic character. But as we never can possibly have an opportunity of examining more than a very small portion of shells with their living animals, such new systematists must again be reduced to classification by the shell, and not by the animal. That an attention to the animal inhabitants of shells is of essential service in the discrimination of species, cannot be denied, but must be wholly confined to specific, not generic distinctions.



5.

B. with a sub-oval, extremely thin, pellucid, white shell, HALIOTOIDEA. with somewhat the habit of a *Haliotis*, but destitute of the small perforations that mark that genus: it is smooth and glossy, but not quite destitute of wrinkles: aperture oval, not quite extending to the *apex*, which is small, obtuse, and convoluted sideways, scarce making two volutions: the body of the shell is very small, and only turns a little inwards, spirally: interior part visible to the end. Length three-quarters of an inch; breadth half an inch. Tab. 7. f. 6.

This species differs from the *B. aperta* in the aperture not extending to the upper end, and in having a contorted *apex*.

We have taken this new and rare shell by dredging in *Salcomb* bay; and have found it of a very inferior size on other parts of the south coast of *Devonshire*, particularly at *Torcross*; and once on *Studland* beach, in *Dorsetshire*. It has also been found at *Weymouth*, by Mr. *BRYER*.

The animal, like that of the preceding species, so completely envelopes the shell, that not the least appearance of it is to be discovered, either in a dead or living state. It is of an oval shape, and of a reddish, or brown colour; sometimes nearly white: has much the appearance of a contracted, naked *Limax*, and indeed seems to be nearly allied to that class of animals.

The upper part of the body is very convex, covered with a thick, tough, ligamentous skin, that conceals the shell, and extends downwards on each side, where the edges are thin, and detached from the body: in the fore part of this margin is a *sinus*, through which the animal protrudes an appendage, or arm, somewhat flat, a quarter of an inch in length, the extremity of which is bifid; the lower division terminating in a thread-like process. The body of the animal beneath, or rather the *Sustentaculum*, is oblong and flat, with a deep depression between it and the marginal skin: the head is furnished with two small, white *tentacula*, at the base of which, are two small black eyes.

The shell may be felt under the skin on the back, but is difficult to be extracted without breaking, from the
extreme

extreme toughness of the part that covers it; the best method of effecting it, is to make a longitudinal incision on the back, with a pair of sharp pointed scissors.

The animal is possessed of considerable locomotive power; and when in motion, frequently contracts the margin or loose skin into wrinkles, or folds, exposing the sides of the body.

It is in size three times as large as its shell, and is incapable of much contraction, or expansion: at first sight might be mistaken for the animal of *B. aperta*, but on comparison, will be found essentially different externally, and more particularly in being destitute of the testaceous gizzard, so remarkable in that animal.

At the time the plate was engraved, we had not been fortunate enough to obtain a larger specimen of the shell than the figure represents; but have since found it of the size described.

In the singular circumstance of the shell being enclosed within the animal of some of this class, there is a considerable analogy between them and the *Laplysia*. The *L. depilans* possesses a flexible, corneous substance, under the skin on the back, termed a shield; which differs only from these species of open *Bullæ* in not being of a testaceous substance: this is of an oval shape, pointed at one end, which turns inward, and a little to one side, in a sub-convoluted manner: it is marked with concentric wrinkles: colour purplish-brown.

This

This, therefore, seems to be the link between the true *mollusca* animals, and the *testacea*: and it is probable future researches may discover, that many which have hitherto been considered as belonging to the *mollusca* tribe, are really *testaceous*, upon dissection.

6.

PLUMULA.

Tab. 15. f. 9.

B. with an ovate-oblong, depressed, pellucid, thin shell, of a yellowish-white colour, tinged with brown at one end; the other end minutely convoluted on the back, or upper part, like the *Bulla Haliotoidea*, but much smaller; the convolution makes one turn: it is strongly wrinkled concentrically for so delicate a shell, and is possessed of two or three ray-like indentations, running from the margin towards the *apex*. The inside, as well as the outside, is somewhat glossy and wrinkled; the aperture extends the whole of the shell, like the *B. aperta*: the pillar lip is slightly turned inward, to form the small depressed volution; but the aid of a glass is requisite to discover the formation of this part. Length half an inch; breadth near a quarter.

This is another of those singular *mollusca* animals, with a concealed shell under the skin upon the back: its shape is sub-oval, but variable; the *Sustentaculum* is large, and ovate, but usually in folds at the edges: the front is generally roundish; the body is small, covered with a broad, thin, sub-orbicular, reticulated membrane, variable in shape, frequently turning back at the margin: the head, which is most times concealed under the membrane or shield, is furnished with two broad *tentacula*, which are sometimes

sometimes quite expanded, and conic; at other times rolled up, and look like cylindric tubes: at the base of these above, are two small black eyes: on the right side of the body is a protruded *foramen*; immediately behind which is a large plumose appendage; the shape is compressed, broad towards the base, and tapering to an obtuse point; *pinnatified*, the *pinnæ* standing alternate; these are somewhat retractile, and changeable in form: beneath the *tentacula* is a broad, bifid membrane, usually projecting into an angle on each side, but very variable in shape. Diameter nearly double that of the shell: colour pale yellow above; beneath pellucid, yellowish-white. It does not possess a testaceous gizzard.

We discovered this new and singular species on the rocks at low-tide, at *Milton* sands, on the south coast of *Devon*.



Bulla punctata. *Lin. Trans.* v. p.2. t.1. f. 6. 7. 8? (*Adams.*) CATENA.

7

Tab. 7. f. 7.

B. with a pellucid, white, glossy shell, closely and finely striated transversely all over; which, under a strong magnifier, are seen to be interwoven or formed into links like a chain: *apex* obtuse, with a visible involution: aperture extremely large, occupying almost the whole of the shell, except a small part at the top; in figure very much resembling the *B. aperta*. A variety with a more transparent zone round it, taking in eight or ten of the *catenæ*, which are more strongly defined; the rest of the shell appears

pears as it were frosted, and not so glossy, possessing a *sub-umbilicus*, and the outer margin of the aperture close to the body is winged, or reflected a little, forming a depression or *fulcus* on that part.

This beautiful species is an elegant object for the microscope, rarely exceeding one-tenth of an inch in diameter.

We found several of these shells amongst the sand at *Bigberry* bay, on the south coast of *Devon*.

If this is the same as the *B. punctata* described by Mr. ADAMS, which we suspect, it is found also on the south sands at *Tenbigh*.

It is probable this, and all the open species of *Bullæ*, are inclosed under the skin on the back of some *mollusca* animal, like the *Bulla aperta* and *Haliotoidea*.

8.

EMARGINATA.

Bulla testâ gibbâ aperturâ emarginatâ. Lin. Trans. v. t. 1. f. 9. 10. 11. (Adams)

Mr. ADAMS's observations on this shell run thus:

Shell pellucid, smooth: lip sub-arcuated. *B. emarginata*, *punctata*, and *denticulata*, agree in their general habits; and *truncata* is most nearly allied to *cylindrica*.

Bulla

Bulla, testâ oblongâ subæquali obtusâ lævi, aperturâ ad api- DENTICULATA.
cem denticulâ acutissimâ. *Lin. Trans.* v. t. 1. f. 3. 4. 5. (*Adams*)

Mr. ADAMS's observations are, "Shell pellucid white.
Sand at the Wash not common."



Bulla Hydatis. *Lin. Syst.* p. 1183. — *Gmel. Syst.* p. 3424. 9. HYDATIS.
Chem. Conch. ix. t. 118. f. 1019.
Pult. Cat. Dorset. p. 40. — *Gualt.* t. 13. D. D.
Turt. Lin. iv. p. 350.

Bulla Navicula. *Da Costa.* p. 28. t. 1. f. 10.

B. with an oval, sub-pellucid, thin, fragile shell, of a greenish or yellowish horn-colour, sometimes covered with a thin, ferruginous *epidermis*: the body is tumid, no external volution, but in its place an *umbilicus*: aperture large at the base, contracting more at the top, and extending rather beyond it: outer lip very thin; inner, or pillar lip a little thickened, and whitish. Young shells are sometimes very glossy and pellucid; older ones generally somewhat opaque, a little wrinkled longitudinally, and very finely striated transversely, only observable by the aid of a glass; the *Columella* is not visible to the end. Length one inch; breadth three-quarters of an inch.

DA COSTA mentions this species as being found at *Weymouth*, but rare, and has quoted the *B. Ampulla* of PENNANT for his shell; probably for no other reason than that the *Ampulla* was not known to him as *English*.

It does not appear to be uncommon on some parts of the western coast. We observed it in the cabinet of Mr. BRYER at *Weymouth*, and was informed by that gentleman, that he had frequently picked it up between that place and *Portland*.

Doct^r PULTENEY found it in the harbour at *Poole*, where we also noticed it; but no where so plentiful as on *Studland* beach, in *Purbeck*: an easterly wind having prevailed for some time, a large quantity of *algæ* was thrown upon this extensive sandy shore, amongst which were thousands of these shells, in all stages of growth, from the largest to the most diminutive, not equal in size to a hemp-feed; most of which contained the animal.

We have likewise taken it in *Salcomb* bay in *Devonshire*, and at *Southampton*, but have never been able to ascertain it on any more eastern or northern part of our coast.

It is said to be a *Mediterranean* species, and is described by GMELIN as like the *B. aperta*; surely he could never have compared these two shells: if he had likened it to the *Bulla Naucum* we should have coincided with him in simile.

The animal inhabitant is a shapeless mass, destitute of either eyes or *tentacula*; the head, or forepart, has a transverse opening, which runs along the sides, and forms fin-like membranes, that expand on part of the under side of the

the shell: the skin is warty, tough, and of a dusky-brown colour. The gizzard or stomach is a very singular structure: it is small in proportion, and consists of three sub-oval, corneous plates, held together at their edges by ligaments, and surrounded by a strong, cartilaginous, or muscular substance: it is of a sub-triangular shape, with the alimentary canal attached to its centre. The plates on the inside are well formed for comminuting its food: they are of a dark purplish-brown, or chocolate colour, with a longitudinal ridge, and several transverse furrows on each; the upper parts reflect outward, and are bare of covering even when connected together, so that their structure is partly seen without opening the stomach: the lower part of the gizzard is convex and muscular.

To a conchologist, perhaps, it would be difficult to describe the appearance of the corneous organs of digestion better, than by saying they resemble so many small *Chitons*.

Bulla Akera.	Gmel. Syst. p. 3434.	11.
	Turt. Lin. iv. p. 358.	AKERA.
Bulla soluta parva.	Chem. Conch. x. t. 146. f. 1358. No. 1. 2. 3.	
Bulla soluta magna.	Id. x. t. 146. f. 1359. 1361?	
Bulla soluta.	Gmel. Syst. p. 3434. 48?	
	Turt. Lin. iv. p. 358.	
Bulla resiliens.	Don Br. Shells. iii. t. 79.	

B. with an extremely thin, pellucid, horn-coloured shell, of an elastic nature: shape oval, somewhat wrinkled

ed longitudinally; *apex* obtuse, convoluted, canaliculated; the volutions even with the body: aperture large at the base, much contracted at the top; the outer lip extremely thin, frequently only a film, the upper part of which lies close to the body whirl, but does not adhere until it has taken almost one volution: pillar lip a little thickened, and white. Inside white; *Columella* visible to the end. Sometimes this shell is so excessively thin, that it is scarce more than membranaceous, except the body part, and is not so pellucid: others are almost transparent horn-colour within and without.

The remarkable character of this species is its elasticity; for though it seems so extremely delicate, as scarce to bear handling, yet it is so tough and flexible, that it does not easily break. Length about three-quarters of an inch; breadth not quite half an inch.

This singular, and elegant shell has been confounded with the *B. Hydatis*, though so essentially different. We have seen it placed with that species in more cabinets than one. It is true their general habit is somewhat similar; but the elasticity, and external volutions of this, are at once sufficient to distinguish it: besides, the *Columella* is visible to the end in this, which is not the case in the other.

DONOVAN has given several very good figures of it, but of an extraordinary size; and says, it was discovered some years ago on the shores of *Bamff* in *Scotland*; and since that, at *Lymington*, and in a moat near *Portsmouth*.

This

This author observes, that in a young state it has the appearance of a winged insect, and sports in its watery element with all the liveliness of a butterfly, and formed a pleasing object when kept alive in a glass of sea-water.

We have found this species in the harbour at *Poole*; and on the shore near *Southampton*, it is by no means uncommon between that town and the *Itchin*, where the fishermen call them *sea-snails*, and assured us they were very lively in the water in warm weather, and sometimes quitted their shells; this circumstance however is to be doubted. CHEMNITZ has described and figured it very well, and speaks of it as a *Dutch* and *Norwegian* shell: he has also given another from *Ceylon*, which seems to differ only in being of superior size.



Bulla cylindracea. *Br. Zool.* t. 70. f. 85.

Don. Br. Shells. iv. t. 120. f. 2. 2.

Lister Conch. t. 714. f. 70.

Bulla cylindrica. *Pult. Cat. Dorset.* p. 40.

12.

CYLINDRACEA.

Tab. 7 f. 2.

B. with a slender, cylindric, smooth, glossy, white shell; aperture the whole length, very narrow, a little dilated at the base: no external volution, but in its place a deep *umbilicus*: outer lip thin, acute, straight: inner lip thickened, opaque white: *Columella* a little indented. Length five-eighths of an inch: breadth not two-eighths.

Doctor PULTENEY informs us, this rare shell has been
found

found at *Weymouth*. We have taken it at *Falmouth* in *Cornwall*, and in *Devonshire*, about *Teignmouth* and *Dawlish* in the south, and *Biddeford* bay in the north: also on the coast of *Caermarthenshire*, sparingly.

LISTER mentions it from *Barnstable*.

This species has frequently been confounded with the *Voluta pallida*, but is at once distinguished by not being convoluted, and in the *Columella* being destitute of folds.

Mr. ADAMS is mistaken in the distinguishing characters between this and the *V. pallida*, (*Lin. Transf.* vol. iii. p 253.) by saying this has no polish: his specimen must have been worn. It has not, indeed, so fine a polish; but recent shells possess considerable gloss.

Doctor TURTON has given the *B. cylindracea* of PENNANT, for the *B. cylindrica* of GMELIN, which is a very different shell.

13.

UMBILICATA.

Tab. 7. f. 4.

B. with an oblong-oval, smooth, white shell: *apex* rounded, *umbilicated*: aperture extremely narrow, the whole length of the shell, dilating a little at the base. Length one-eighth of an inch; breadth one half its length.

This shell has much the habit of *B. cylindracea*, but is not so cylindric, and is broader in proportion to its length.

We

We found this species, sparingly, amongst sand from *Falmouth* harbour.



Bulla truncata. *Lin. Trans.* v. t. 1. f. 1. 2. (*Adams.*)

Turt. Lin. iv. p. 358.

14.

TRUNCATA.

Tab. 7. f. 5.

B. with a sub-cylindric, opaque, white shell; the upper part longitudinally striated, the lower plain: *apex* truncated, and largely *umbilicated*, shewing the involutions: aperture the whole length, extremely narrow, but dilated a little at the base, and contracted most in the middle.

This shell has somewhat the habit of the last, and of the same size; but differs in being truncated at the top, in the involutions being conspicuous within the *umbilicus*, and in being partly striated. We found this not uncommon in sand at *Falmouth*; rare from *Salcomb* bay, *Devonshire*, and *Weymouth*.

Worn shells are sometimes destitute of striæ.

Not *B. truncata* of GMELIN.



15.

Bulla crassa, apertura medio coarctata. *Walk. Min. Shells.* f. 62. OBTUSA.

Bulla Regulbientis. *Turt. Lin.* iv p. 351.

Tab. 7. f. 3.

Adams. Microsc. t. 14. f. 28.

B. with

B. with a moderately strong, sub-cylindric, opaque white shell, wrinkled longitudinally: apex convoluted, obtuse; volutions four or five, very little produced: aperture nearly the whole length of the shell, narrow, rather more compressed in the middle, dilated at the base: inner lip thickened, smooth, white.

Length two-tenths, rarely a quarter of an inch; breadth about half its length.

We were first favoured with this species from Mr. BOYS, for the shell figured by Mr. WALKER, as above quoted; and have since found it in great abundance on the shore near *Southampton*; rarely at *Salcomb* in *Devonshire*: and not uncommon about *Laugharne* on the coast of *Caermarthenshire*.

In a recent state it is frequently covered with a chestnut-coloured *epidermis*. It was once sent to us for the *Voluta pallida*; but from that shell it is readily distinguished by being much shorter, the volutions more deeply divided, more obtuse, and in wanting the essential character of a *Voluta*, the plicated *columella*. It is, indeed, more nearly allied to the last species of *Bulla*, but differs not only in being much larger, but in the produced volutions, and the aperture not reaching quite to the top, as well as being destitute of the regular longitudinal striae on the upper part of the shell.

B. with

B. with a smooth, glossy, pellucid, white, sub-oval shell; body large, ventricose, with three very small volutions: *apex* somewhat pointed, but not much produced: aperture sub-oval, nearly the length of the shell; outer lip attenuated; inner lip smooth; *Columella* plain, not visible to the end. Length rarely exceeding three-eighths of an inch; breadth two-eighths.

DIAPHANA.

Tab. 7. f. 8.

This is a scarce species, found only in *Salcomb* bay, except one mutilated specimen at *Falmouth*; from the former place we have taken it alive by dredging, adhering to the inside of old oyster shells.

Is so extremely thin and brittle, that it is difficult to obtain perfect; and is sufficiently transparent for the *Columella* to be seen through the shell.

It is not very unlike the figure of *Voluta Jonensis* in the *British Zoology*, but not quite so long, and the outer lip spreads more upwards; it cannot, however, be that shell, as it wants the plicated *Columella*, the essential character of that genus.

Conchologists have thought that some of the *Cyprææ* assume a very different appearance in their young and adult states; such a prevailing opinion, from perhaps a single instance in a foreign species, possibly not well authenticated, may lead to a conjecture that this is no other than the young of *Cypræa Pediculus*; a circumstance

G g

which

which has been hinted by one or two of our conchological friends. To this we shall only observe; the animal is essentially different, not possessing any of that beautiful membrane which the animal of *Cypræa Pediculus* throws over the whole of its shell; but is like a common aquatic *Limax*; of a pale colour.

17.

FONTINALIS.

- Bulla fontinalis.* *Lin. Syst.* p. 1185. — *Gmel. Syst.* p. 3427. 18.
Lister Conch. t. 134. f. 34. — *Id. Ang.* t. 2. f. 25.
Chem. Conch. ix. t. 103. f. 877. 878.
Pult. Cat. Dorset. p. 40. — *Gualt.* t. 5. C. C.
Schroet. Flussconch. t. 6. f. 11.
Turt. Lin. iv. p. 352.
Planorbis Bulla. *Muller Verm.* p. 167. No. 353.
Turbo adversus. *Da Costa* p. 96. t. v. f. 6. 6.
Favan. t. 61. E. 9.

B. with four or five reversed volutions, of a glossy, pellucid, light horn-colour: the body whirl large, the others very small, and not much produced: aperture oblong-three-fourths the length of the shell.

Old shells are somewhat striated, or rather wrinkled longitudinally, with two or three faint transverse ridges on the body whirl. Length half an inch; breadth a quarter.

This species is not uncommon in stagnant pools, as well as running waters, in many parts of the kingdom; but is in general, not above half the size described.

It

It is most frequently found on the under part of the leaves of aquatic plants.

The animal is of a light colour, with a yellowish cast: *Tentacula* two, setaceous, long: eyes two, black, placed underneath, at the base of the *Tentacula*. When in motion, it covers great part of the shell with a thin, pinnated membrane, thrown out on the right side, extending quite behind, and partly on the left side, covering the smaller volutions: this membrane is very deeply divided or digitated, the points of which meet, and sometimes intersect on the back of the shell; and are so transparent as scarce to be distinguished, but by the assistance of a glass. The *Sustentaculum*, or foot, is long and narrow: the *foramen*, or common aperture, is on the left side, as must be the case with all the animals of this kind inhabiting *heterostrophe* shells.

It has very considerable loco-motive power, and transports itself by adhering to the surface of the water, with the shell downwards: against which it crawls with as much apparent ease as on a solid body; and will sometimes let itself down gradually by a thread affixed to the surface of the water, in the manner of the *Limax filans** from the branch of a tree.

The property of crawling under water, against its surface, is not wholly confined to this species; but we know of no other testaceous animal capable of suspending itself under water in the same way.

* For an account of the *Limax filans*, see *Lin Trans.* vol. iv. p. 85. tab. 8.

It has the power of throwing its shell about in an extraordinary manner, either in defence, or to remove obstructions, continuing at the same time fixed by its foot. Probably this singular motion is sometimes occasioned by a minute species of *Hirudo*,* which infests this and many other fresh-water testaceous animals; twenty or more may be seen adhering to its sides like slender white filaments. This *Leech* is not uncommon on the *Helix peregra*, *H. fossaria*, and *H. nautilus*; as well as the *Patella fluviatilis*; and probably on all other animals belonging to univalve *testacea* at particular seasons, which inhabit fresh-water.

18.
HYPNORUM.

- Bulla Hypnorum. *Lin. Syst.* p. 1185.
Gmel. Syst. p. 3428. 19.
Chem. Conch. ix. t. 103. f. 882. 883. a. b. c.
Turt. Lin. iv. p. 353.
Schroet Flussconch. t. 6. f. 9. & f. 15. a. b.
 Bucc. heterostrophon. *Lister Conch.* t. 1059. f. 5.
Petiv. Gaz. t. 10. f. 8.
Favan. t. 61. F. 18.
 Turbo *Walk. Min. Shells.* f. 54.
 Planorbis turritus. *Muller Verm.* p. 169. No. 354.

B. with five or six, reversed, taper, smooth, glossy, pellucid, horn-coloured spires: the body-whirl half the length of the shell, the others tapering to a fine point; aperture narrow at the top, spreading a little at the base; outer lip extremely thin; pillar lip a little thickened:

* *Gordius inquilinus.* *Mull. Verm.* i. p. 33. No. 164.

Columella

Columella within somewhat indented. Length five-eighths of an inch; breadth two-eighths.

This species has sometimes been confounded with the last described, but is readily distinguished by its taper, produced spires; and by the aperture, which is much shorter, and more contracted: is also much more glossy, and of a darker colour. It is a more local shell; we have found it tolerably plentiful in a watery ditch near *Exeter*; and in *Wiltshire* of an extraordinary size, measuring nearly three-quarters of an inch. In a pond, subject to be overflowed by the *Avon* in that county, we have seen great abundance; and in the same field were plenty of the *B. fontinalis*, and yet they had never communicated with each other, for in neither place were they to be found together. This is PETIVER'S *Buccinulum fluviatile heterostrophon*, who says, it is found in some ponds and ditches about *London*. We have received it from *Kent*.

DA COSTA was unacquainted with this shell, but erroneously quoted it for his *Turbo adversus*; the *Bulla fontinalis* of LINNÆUS; as is evident by his description and figure.

This and the preceding are two of the few known species which are *heterostrophe* shells, or turn from right to left, from the *apex* to the aperture; that is, the spires represent a left-handed screw, turning contrary to the sun's apparent motion.

Both

Both LINNÆUS and GMELIN appear to be perfectly unacquainted with the natural history of this shell, having described it to inhabit wet moss, which bespeaks it to be a land shell; whereas, it is an aquatic; the animal of which is incapable of residing out of water. The latter author has also expressed his doubts, whether it was not a variety of *B. fontinalis*. How such doubts could ever have existed, even from a comparison of the two shells, independent of their natural history, is very extraordinary: the animals too are essentially different.

Animal dusky-black; *Tentacula* two, moderately long, fetaceous, black; eyes placed on the head, at the base of the feelers: *Sustentaculum* not quite so long as the shell.

No fins, or membrane that covers the shell, like that of the *Bulla fontinalis*.

 GEN XXII.

 VOLUTA.

Animal a LIMAX.

SHELL, univalve, spiral.

Aperture, longitudinally extending near the whole length of the shell, ecaudated.

Columella, plicated : no *umbilicus*, nor interior lip.

Voluta tornatilis. *Lin. Syst.* p. 1187.—*Gmel. Syst.* p. 3437.

Lister Conch. t. 835. f. 58.

Martini Conch. ii. t. 43. f. 442. 443.

Br. Zool. t. 71. f. 86.

Pult. Cat. Dorset. p. 41.

Don. Br. Shells. ii. t. 57.

Turt. Lin. iv. p. 360.

Turbo ovalis. *Da Costa* p. 101. t. 8. f. 2. 2.

1.

TORNATILIS.

V. with an oval shell of eight spires, the first very large, the others small, and tapering to an extreme fine point:

of

of a pale purplish red, finely striated spirally; with two white *fasciæ*, or bands, on the body whirl: aperture long and narrow; outer lip thin; *Columella* with one fold. Length three-quarters of an inch.

This elegant species appears to be local, and rather scarce upon the *English* coast. DA COSTA says he received it from *Teignmouth* and *Exmouth* in *Devonshire*. It must, however, be extremely rare at those places, as a long continuance there never furnished us with a single specimen: but further to the west on the same coast, at *Torcross*, we have sometimes taken it by dredging.

DOCTOR PULTENEY speaks of it as rare in *Dorsetshire*, but that it has been found at *Weymouth*.

MR. PENNANT notes it from *Anglesea*.

We found it not un plentiful on the flat, sandy shore, near *Laugharne* in *Caermarthenshire*, among the drifted sand about high-water mark: at this place a diligent searcher might pick up a dozen in a morning. Is also found sparingly on other parts of the south coast of *Wales*.

2.

PALLIDA.

- Voluta pallida.* *Lin. Syst.* p. 1189.—*Gmel Syst.* p. 3444. 30.
Lister Conch. t. 714. upper left hand figure.
Lin. Trans. iii. p. 253. (*Adams.*)
Turt. Lin. iv. p. 365.
Bulla cylindracea. *Da Costa.* p. 31. t. 2. f. 7. 7.
Bulla pallida. *Don. Br. Shells.* ii. t. 66.

V. with

V. with a smooth, glossy, white, cylindric shell: upper volution extremely small, and scarcely defined by a separating line: *apex* obtuse: aperture narrow, extending near the length of the shell, spreading a little at the base; outer lip thin: *Columella* plicated, with four strong folds. Length half an inch; breadth a quarter.

It is very extraordinary DA COSTA should have made this the *Bulla cylindracea* of the *British Zoology*, a shell neither convoluted nor plicated on the *Columella*. Mr. PENNANT expressly says, his shell is *umbilicated* at the end: a character sufficient to distinguish it from this.

The *V. pallida* is certainly a very rare species on the *British* coast. DA COSTA must have been misinformed with respect to its being found plentiful on the western coasts, for not a single specimen has ever come within our frequent researches in those parts; nor does Doctor PULTENEY mention it in his *Catalogue of Dorsetshire Shells*. Mr. ADAMS, however, notes it from *Tenby*.

This shell is of a finer polish, and smoother than the *Bulla cylindracea*; broader in proportion to its length, the aperture not so much contracted, and is at once distinguished by the true characters of a *Voluta*.

Voluta Jonensis. *Br. Zool* t. 71. f 87.

Turt. Lin iv. p. 360.

3.

JONENSIS.

H h

V. with

V. with a very thin, brittle shell, with two small spires. Inhabits the isle of *Jona*, or *Y Columb-kil*.

This is all Mr. PENNANT says of the shell. Was it not placed in the *British Zoology* as a *Voluta*, we should have been inclined to think it a variety of our *Bulla diaphana*.

4.

DENTICULATA.

Turbo bidentata. *Walk. Min. Shells*. f. 50, & f. 53. young.

V. with seven or eight volutions, tapering to a fine point, the lower one large, the others gradually decreasing: of a semi-pellucid horn-colour, inclining to purplish-brown towards the top: aperture oblong-oval, half the length of the shell; outer lip furnished with two or three tubercles near the margin, and frequently with three or four white denticulations further within the aperture: *Columella* plicated, with three or four white folds, which are much elevated, and appear like teeth, but spirally turn with the *Columella*. Length near half an inch; breadth not a quarter. It is subject to some variety with respect to the denticulations on the outer lip; some have more, others less, or even destitute of them in young shells: the plications on the *Columella* vary also from two to four, but most commonly three.

If we had not received this shell from Mr. BOYS for WALKER'S *Turbo bidentata*, as above quoted; we should hardly have considered it as the same; as he says it is found
on

on the roots of rushes in marshes near *Faversham*. Possibly the marshes where they were found, were subject to the flux of the tide; for it is evidently a marine shell. We have found it plentiful on the shore between *Plymouth* and *Dock*, feeding on *algæ* at high-water mark; and also sparingly on another part of the south coast of *Devonshire*, as well as at *Barnstable* and *Ilfracomb* in the north; near *Aberavon* in *Wales*; and at *Southampton*.

Very young shells sometimes possess only one fold on the *Columella*; in which state we consider it to be WALKER's shell, figure 53.

A remarkable character of this shell is, that the *Columella* extends no further than the upper part of the body volution; the superior spires being destitute of any pillar, or internal spiral division.



Voluta alba opaca longitu- *Walk. Min. Shells. f. 61.*

dinaliter striata.

Turt. Lin. iv. p. 361.

Adams Microsc. t. 14. f. 27.

5.

ALBA.

V. with an oval, white shell, with four volutions, finely striated: aperture long, narrow. Length one tenth of an inch.

Mr. BOYS favoured us with this minute species, for WALKER's shell above quoted. It is opaque, but glossy. Said to be not uncommon at *Sandwich* and *Shepey Island*.

6.

CATENATA.

Tab. 6. f. 2.

V. with an oblong-oval, strong, sub-pellucid, white, and extremely glossy shell, with four bands of opaque, white, oblong spots, connected by small rufous spots or streaks, in a very elegant manner, like so many small chains: upper volution scarcely defined; *apex* indented, involuted: aperture the whole length of the shell, linear: outer lip thick, but not marginated, and obsoletely denticulated: *Columella* quadriplicated, with two strong, and two faint folds. Length a quarter of an inch; breadth at the top one eighth. We observed several of this new and elegant species in Mr. SWAINSON's cabinet of *British* shells, under the title of *Cypræa catenata*; who obligingly favoured us with a specimen.

The trivial name we have therefore continued it by, but have been induced to place it in this genus, from the structure of the *Columella*, and not being denticulated on the inner lip. It is, however, a connecting link between the two *genera*. We are wholly indebted to that Gentleman for all we have been able to collect concerning this shell: who, in a letter upon the subject, says,

“I never found this shell alive; I got three or four dead specimens, in the sediment at the bottom of pools of water, (if they may be so called) left in the holes of the rocks in *St. Austle* bay, near *Fowey*: have heard of its being taken off the *Lizard*, and also at *Penzance*.”

Is said to be found in *Guernsey* of a superior size.

GEN.

 GEN XXIII.

 BUCCINUM.

Animal a LIMAX.

SHELL, univalve, spiral, gibbose.

Aperture, ovate, ending in a short canal or gutter, to the right.

Buccinum undatum. *Lin. Syst.* p. 1204.

Gmel. Syst. p. 3492. 93.

Lister Conch. t. 962. f. 14. 15.

Id. Angl. t. 3. f. 2. 3.

Martini Conch. iv. t. 126. f. 1206. 1211.

Br. Zool. No. 90.—*Turt. Lin.* iv. p. 404.

Pult. Cat. Dorset. p. 42.

Buccinum vulgare. *Da Costa* p. 122. t. 6. f. 6. 6.

Buccinum striatum. *Br. Zool.* t. 74. f. 91.

Turt. Lin. iv. p. 404.

1.

UNDATUM.

B. with seven or eight, ventricose spires, undulately ribbed, transversely striated, and crossed with finer longitudinal striæ.

This

This common species is strong, and grows to a large size, frequently five inches in length; is subject to vary in colour, from white to chestnut-brown, but more frequently the former, in part tinged with rufous-brown. In some shells the ribs are strong; others are only a little ribbed towards the top; this variety is the *B. striatum* of Mr. PENNANT.

There are scarce any of our shores but what produce this shell. Is commonly taken in dredging by fishermen, who either use the animal for bait, or destroy it, from a supposition that it is very destructive to the large scallop, *Pecten maximus*; by insinuating its tail (as it is termed) into the shell, and destroying the inhabitant: this we have been assured they will do even in a pail of sea water.

Small shells are sometimes very thin, and prettily marked with brown: old ones are frequently covered with a brown *epidermis*, or rough extraneous matter.

The spawn of this species is found in large clusters upon most parts of our coast, in which the young are frequently seen. In this state, and for some time after they are excluded, they have an obtuse globular *apex*; and have been described as a distinct species. The *Murex decollatus* of PENNANT and DONOVAN is no other than this, or the fry of *Murex despectus*.

Buccinum Lapillus. *Lin. Syst.* p. 1202.—*Gmel Syst.* p. 3484. 53. LAPILLUS.

Lister Conch. t. 965. f. 18. 19.

Id. Angl. t. 3. f. 5. 6.

Martini Conch. iii. t. 121. f. 1111. 1112.

Id. iv. t. 122. f. 1124. 1125. & var.

Petiv. Gaz. t. 18. f. 5.

Br. Zool. t. 72. f. 89.—*Turt. Lin.* iv. p. 397.

Pult. Cat. Dorset. p. 41.

Don. Br. Shells. i. t. 11.

Purpuro-Buccinum. *Da Costa.* p. 125. t. 7. f. 1. 2. 3. 4. 9. 12.

B. with a thick shell, with five or six spires, strongly striated spirally, and fine, elevated, irregular, undulated striæ, longitudinally: apex small, pointed: aperture oval; outer lip waved, or sub-denticulated; pillar lip smooth, replicated. Length rarely exceeds two inches; breadth an inch.

This species is subject to great variety; in some the longitudinal striæ are membranaceous and sharp; others are almost smooth and destitute of any: the colour is usually dirty-white, or yellowish; but sometimes prettily banded with chestnut-brown, or yellow. Young shells vary so much in shape as scarcely to be ascertained; some are extremely ventricose in the body whirl, with the upper volutions very small; and the whole shell muricated with concave, spinous ridges: others are more taper, and only spirally ridged.

This is one of the most common shells upon our coast, adhering to rocks quite up to high-water mark.

The

The famous purple, or *Tyrian dye*, has been, amongst others, extracted from the animal of this shell, an account of which is detailed in the *Philosophical Transactions*, No. 1684 by Mr. COLE; and is inserted in DA COSTA and the *British Zoology*. M. REAUMUR has also written upon it, in the *Paris Memoirs* for the years 1712 and 1717. It is supposed that singular and beautiful dye is yielded only by the *ovarium*; if so, it is no wonder many have been disappointed in their researches for it, as probably it is only to be found at a certain season of the year, when that part is dilated by impregnation.

3.

RETICULATUM

Buccinum reticulatum. *Lin. Syst.* p. 1264.

Gmel. Syst. p. 3495. 111.

Martini Conch. iv. t. 124. f. 1162. to 1164

Lister Conch. t. 966. f. 21.

Br. Zool. t. 72. f. 92.

Turt. Lin. iv. p. 406.

Da Costa p. 131. t. 7. f. 10.

Pult. Cat. Dorset. p. 42.

Don. Br. Shells. iii. t. 76.

Buccinum vulgatum. *Gmel. Syst.* p. 3496. 120.

Martini Conch. iv. t. 124. f. 1165. 1166.

Buccinum Pullus. *Br. Zool* t. 72. f. 88.

B. with a strong, reticulated shell, with seven or eight costated volutions tapering to a fine point, and wrinkled with transverse elevated striæ, which rise into tubercles upon the ribs, and gives it a decussated appearance: aper-
ture

ture sub-oval; outer lip even, not thickened at the back, denticulated within; inner lip replicated, glossy white, sometimes faintly crenated: colour usually brown.

A variety has the outer lip attenuated, and no denticulations: another variety is smaller, with the ribs more distant, and sometimes with one rib larger and more raised than the rest; colour purplish brown: inside purple. This appears to be the *B. vulgatum* of GMELIN, and the *B. Pullus* of PENNANT. It must, however, be remarked, that all these varieties run so much into each other, both in the ribs and colour, that no permanent distinction can be made.

Worn shells sometimes become quite white, especially the young ones. The largest shells are an inch and a half long, and nearly three-quarters wide at the base. Common on many of our shores.



Buccinum minutum. *Br. Zool.* t. 79. inner angle beneath left hand. 4.
MACULA.

Buccinum minimum. *Turt. Lin.* iv. p. 387. Tab. 8. f. 4.

B. with six or seven ribbed spires, transversely striated like the *B. reticulatum*: apex pointed: aperture sub-orbicular; outer lip gibbose at the back, denticulated within; inner lip replicated, and faintly denticulated: colour various, mottled rufous, brown, and white, or wholly pale purple, and sometimes red; but rarely wholly white. In

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all these variations it preserves the invariable characteristic mark of a small spot of a dark purplish colour at the outer edge of the canal; and has generally a purplish tip. It is at once distinguished from the young of *B. reticulatum*, by the gibbose outer lip. The length of this species rarely exceeds half an inch; breadth one quarter of an inch.

It is not uncommon in some of the small bays about *Falmouth*; we have also found it on the north and south coasts of *Devonshire*, in *Dorsetshire*, and in *Wales*: and once received it from a friend on the *Kentish* coast for the *B. Pullus* of LINNÆUS, but is certainly not that shell.



5.
 AMBIGUUM.
 Tab. 9. f. 7.

Buccinum ambiguum. *Pult. Cat. Dorset.* p. 42.

B. with a thick, strong, sub-conic, white shell, with six strongly ribbed spires, finely striated transversely: the ribs are distant, and swell at the junction of each spire into knobs or tubercles: aperture sub-orbicular; outer lip thickened by the rib, slightly denticulated; inner lip replicated, with generally two faint distant folds. Length rather more than half an inch; breadth three-eighths.

We were first favoured with this species from Doctor PULTENEY, who says, it is found between *Weymouth* and *Portland* on the sands, and on the north shore at *Poole*. The Doctor is certainly mistaken, in quoting the *B. Pullus* and *B. minutum* of PENNANT for this shell; the former being only a variety of the *B. reticulatum*, and the latter

latter we believe our *B. Macula*. This is perfectly distinct from either of those shells, not only in being much broader in proportion to its length, but in the ribs being much more distant, and gibbose at the spiral junctures. It is, we believe, a very rare species: many of those we have examined, were stained in part with a ferruginous colour, not natural to the shell.

Mr. BRYER, who has taken several of these shells on the shore between *Weymouth* and *Portland*, informed us, they were all of that colour; though we observed several in Doctor PULTENEY's cabinet perfectly white, that appeared to be live, or recent shells.



Buccinum hepaticum. *Pult. Cat. Dorset.* p. 41.

Lister. Conch. t. 975. f. 30.

6.

HEPATICUM.

Tab. 8. f. 1.

B. with a strong, brownish shell, with seven or eight ribbed volutions: a transverse line, or depression, near the top of each spire; which, cutting the ribs, forms that part into small knobs; in other respects it is smooth, except a few striae at the base of the body whirl, and is somewhat glossy: the volutions are rather tumid, and strongly divided; *apex* sharp: outer lip thick, turning inwards to an edge, beneath which are several denticulations or striae; inner lip folded back, with one tooth-like ridge on the upper part: colour a little varying with a few ferruginous spots, and sometimes a white *fascia* on the inside of the outer lip. Doctor PULTENEY favoured us with this species,

which he says is found in *Purbeck*, and dredged up at *Weymouth*; but rarely.

It seldom exceeds an inch in length; and five-eighths of an inch in breadth.



7.

BILINEATUM.

Buccinum bilineatum. *Gmel. Syst.* p. 3476.

Turt. Lin. iv. p. 391.

Buccinum porcatum. *Pult. Cat. Dorset.* p. 41.

Buccinum decussatum. *Br. Zool. App.* t. 79. two bottom figures.
Lister Conch. t. 998. f. 63.

B. with an ovated, smooth, whitish shell, girdled with two, three, or four bands of brown spots; the upper part set round with two series of tubercles, upper volutions smooth: aperture large, sub-oval; outer lip slightly dented; inner lip rugose, and granulated.

Foreign specimens exceed two inches in length: that figured by Mr. PENNANT is a young shell, scarcely an inch long, and was found at *Weymouth*.



8.

PERDIX.

Tab. 8. f. 5.

Buccinum Perdix. *Lin. Syst.* p. 1197.—*Gmel Syst.* p. 3470. 3.

Lister Conch. t. 984. f. 43.

Martini Conch. iii. t. 117. f. 1078. 1080.

Pult. Cat. Dorset. p. 41.—*Gualt.* t. 51. f. F.

Turt. Lin. iv. p. 385.

B. with

B. with a sub-oval shell, with five or six volutions; the first very large and tumid, the others small in proportion, marked with flat, transverse ridges, broader than the interstices: colour yellowish-brown, marbled and spotted with white: aperture large, oval; outer lip thin, plain; lower part of the inner lip a little replicated, forming a *sub-umbilicus*.

Exotic shells grow to a large size; those which have been found in *England* are not larger than a hazel nut, as we are informed by Doctor PULTENEY; who says, it has been dredged up at *Weymouth*, and thrown up after storms. We observed it in Mr. BRYER's cabinet, who assured us he found it on the same coast.



Buccinum lineatum. *Da Costa.* p. 130. t. 8. f. 5.

Pult. Cat. Dorset. p. 41.

Don. Br. Shells. i. t. 15.

Turt. Lin. iv. p. 387.

9.

LINEATUM.

B. with a strong, smooth, conic shell, with five or six volutions, regularly banded with alternate, spiral lines, of chocolate-brown and white, that gives it the appearance of being striated: *apex* sharp, pointed: aperture oval; outer lip a little spreading, margin marked by the brown lines, that look like *crenulæ*. Length a quarter of an inch; breadth one eighth.

DA.

DA COSTA says, this shell is found in great abundance in *Cornwall*, but does not mention any particular part of that coast. If we did not know that shells are extremely local, we should be induced to think he had been deceived; as we never could find it on any of the shores in that county, nor in *Devonshire*. DOCTOR PULTENEY says, it is common on the coast of *Dorset*; sometimes in great numbers adhering to *fuci* and grass wrack.

On such good authority the existence of this shell as *English* could not be doubted, though we always considered it as extremely rare, or at least very local; never having been fortunate enough to find it till lately, and that sparingly, between *Weymouth* and *Portland*. From the same place we have been favoured with several specimens from Mr. BRYER, amongst which was one entirely white, and another variety lineated with pale brown and white.

10.

CINCTUM.

Tab. 15. f. 1.

B. with a conic, white shell, marked with a fine thread-like girdle, of a rufous-brown colour, round the middle of each spire: volutions six or seven, nearly even, finely and closely ribbed, and obsoletely striated transversely in the depressions between the ribs: *apex* sharp: aperture narrow, oval; outer lip thickened with a broad rib at the back, and denticulated within; inner lip sub-crenulated by the transverse striæ at the base; on the edge of the outer lip, near the end, is a small rufous spot, and another at the upper angle of the aperture; from these,

two

two obsolete broken lines are to be traced round the base of the shell.

Whether these markings are permanent characters, we dare not determine, as only one specimen of this new shell has come under our examination: but in other respects is so very different from any *British* species of *Buccinum* hitherto described, that it cannot be confounded.

Found by Mr. BRYER on the shore near *Weymouth*, together with several other new and rare shells, which will enrich this work. Length barely a quarter of an inch.



11.

B. with a strong shell, with five reticulated, taper spires: MINIMUM. the ribs that run longitudinally are considerably raised, Tab. 8. f. 2. which being cut by the transverse striæ, gives it a decussated appearance: aperture oval; both lips smooth: colour varying from light to dark chesnut-brown, without any spots or markings. Length scarce two-tenths of an inch, and more than double its breadth.

We found this species in considerable abundance on the south coast of *Devon*, at the mouth of the *Aun*, amongst the drifted sand; and rarely alive by dredging at *Salcomb* and *Torcross*.

It does not appear to be noticed before by any conchologist and is probably a local shell.

Buccinum

12.

TERRESTRE.
Tab. 8. f. 3.

Buccinum Acicula.

Muller. Verm. p. 150. No. 340.

Walk. Min. Shells. f. 60.

Gualt t. 6. B. B.

Buccinum longiusculum. Adams. Microsc. t. 14. f. 26.

Buccinum obtusulum. Turt. Lin. iv. p. 416.

Schroet. Flussconch. t. 8. f. 6. a. b.

Id. Erdconch. p. 142.

B. with six slender, smooth, glossy, pellucid, white spires, terminating in an obtuse point: the volutions not much raised, but well defined by the separating spiral groove: aperture oblong, sub-oval; outer lip thin, even; pillar lip thickened, forming a small gutter: no teeth. Length a quarter of an inch; breadth scarce one fourth its length.

The remarkable characters of this shell are the uncommon obliquity of the spiral turns of the volutions, and the length of the first spire, which, more than double, exceeds that of the second, and is nearly equal to the three succeeding.

Mr. BOYS originally favoured us with this species for the shell figured by WALKER as above quoted; who states it to be found in *Faversham Creek* only; which implies it to be marine; but was doubtless carried there by some neighbouring stream; for it is a land shell.

We have procured it from the top of *Barham* downs in *Kent*, where it is common on the roots of the grass, and under

under moss: and have found great abundance, amongst a variety of shells brought down by the floods in the river *Avon* at *Lackham* in *Wiltshire*. These are superior in size to those from *Kent*, but of course dead shells though perfect.

SCHROETER was at a loss whether to place this amongst his land or fresh-water shells, and has therefore given it a place both in his *Flussconchylien* and *Erdconchylien*; and what is extraordinary, has affixed to it the synonyms of *Helix octona*, notwithstanding he expressly says, it does not answer to the description of the *Linnæan* shell, as it neither has a *sub-umbilicus*, or roundish mouth.

MULLER has committed the same error, and has equally quoted GUALTERI's figure; which is a minute species, and not the least corresponding with the *Linnæan* description of *H. octona*.

GMELIN has continued the error of those authors, not having been acquainted with the shell in question; and, in order to correspond with their descriptions, tells us it has sometimes six spires, the first twice as large as the next; and the *umbilicus* inconspicuous. This, though it accords partly with SCHROETER's and MULLER's shell, certainly does not correspond with, "*testa subperforata turrata: anfractibus octo, apertura subrotunda*," the specific characters given by LINNÆUS to his *H. octona*.

That GUALTERI should make this an aquatic, is not surprising, as all our land-shells are occasionally carried

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into streams and rivers, and cannot be ascertained but by a knowledge of their several animals; so that when a shell is found in water that has never before occurred, it has at once been considered as belonging to that element; and has led to innumerable errors.

13.
OBTUSULUM.

Buccinum obtusulum. *Turt. Lin.* iv. p. 387.

Adams Microsc. t. 14. f. 25.

Walk. Min. Shells. f. 59.

“The bellied whilk of three spires with an oval aperture: colour opaque white.” From *Faversham Creek*; very rare.

This is one of the few of Mr. WALKER's shells we have not had an opportunity of examining; have therefore copied the description from his work. It is a microscopic species.

14.
BREVE.

Buccinum breve: testa quinque anfractibus: longitudinaliter costatis: transversim striatis: color albus opacus, caudâ brevissimâ. *Lin. Trans.* iii. t. 13. f. 3. 4. (*Adams.*)

Shell white, with five whorls, which are longitudinally ribbed and transversely striate. *Turt. Lin.* iv. p. 387.

15.
MINUTUM.

Buccinum minutum: tribus anfractibus: longitudinaliter costatis: color albus opacus. *Lin. Trans.* iii. t. 13. f. 5. 6. (*Adams*)
Shell

Shell white, opaque, with three whorls, which are longitudinally ribbed. *Turt. Lin. iv. p. 387.*

16.

Buccinum læve: testa lævi tribus anfractibus, cauda elongata: LÆVE.
color albus opacus; anfractus primus secundo multo ventricosior; apertura ovalis.

Lin. Trans. iii. t. 13. f. 7. 8. (Adams.)

Shell smooth, with three whorls and a long beak. *Turt. Lin. iv. p. 387.*

17.

Buccinum obtusissimum: testa lævi, tribus anfractibus, apertura coarctata, cauda elongata. OBTUSISSIMUM.

A præcedente differt et in aperturæ forma, et quod anfractus ipsi sunt quam proxime magnitudinis æqualis.

Lin. Trans. iii. t. 13. f. 9. 10. (Adams)

Shell smooth, with three whorls, and a long beak: aperture contracted. *Turt. Lin. iv. p. 387.*

The four preceding shells we have been obliged to copy from Mr. ADAMS, who found them on the coast of *Pembrokehire*; they are all microscopic species.

The two first seem to differ in nothing but the number of volutions. The two last appear to be young unformed shells not perfected at the *apex*; possibly the young of *Murex despectus* just escaped from the egg.

It must be remarked, that most turbinated univalve shells, when first produced, have few volutions, and their *apex* abrupt, swelling into a round knob: even the common garden snail, *Helix aspersa*, is so different in its infant state, as to have been considered a distinct shell: great care is therefore requisite in discriminating the minute species.

We have always rejected those whose *apex* was globose, and destitute of a finished spire.

GEN XXIV.

STROMBUS.

Animal a LIMAX.

SHELL, univalve, spiral.

Aperture ending in a canal to the left: outer lip for the most part much expanded.

Stromb. Pes Pelecani. *Lin. Syst.* p. 1207.

Gmel. Syst. p. 3507. 2.

Martini Conch. iii. t. 85. f. 848. 850.

Lister Conch. t. 865. f. 20. — t. 866. f. 21. b.

Br. Zool. No. 94.

Pult. Cat. Dorset. p. 42.

Don. Br. Shells. i. t. 4.

Turt. Lin. iv. p. 417.

Aporrhais quadrifidus. *Da Costa.* p. 136. t. 7. f. 7.

1.

PES PELECANI.

S. with a pyramidal shell, tapering to a fine point, with ten ribbed, or rather tuberculated, volutions; on the body whirl are two rows of smaller tubercles beneath the larger ones: outer lip much expanded, quadrifid, the upper angle

angle running far up the spire; the lower one formed by the tail or canal; these are more or less channelled beneath: flesh-colour. Length near two inches.

This shell is subject to great variety with respect to the outer lip, which increases by age: young shells have all the appearance of a *Murex*, without the least expansion of the lip, and all gradations are to be met with from that to the perfect shell.

DA COSTA speaks of this species as pretty general on many parts of the *English, Welch, and Scottish* coasts.

We have found it not uncommon at the mouth of the *Ex*, on *Dawlish Warren* in *Devonshire*, but rarely perfect, except after violent storms.

Live shells are sometimes obtained at *Torcross* by deep dredging; but more frequently old and worn specimens, which are invariably inhabited by a new and singular species of *Sipunculus*, who closes up the aperture with agglutinated sand, leaving only a small round hole, within which it recedes. This animal is capable of withdrawing its anterior part within the other, in the same manner that the common *Limax* draws in the larger *tentacula*, to which the eyes are affixed; it has no other mode of contracting or expanding.

The animal of the *S. pes. Pelecani* has a long snout, and two filiform *tentacula* of a pink colour; the former
spotted

spotted with white: eyes black, at the base of the *tentacula* beneath; *sustentaculum* short, white.



Strombus costatus. *Pult. Cat. Dorset.* p. 42.

Don Br. Shells. iii. t. 94.

Strombiformis costatus. *Da Costa* p. 118. t. 8. f. 14.

2.

COSTATUS.

S. with ten or eleven volutions of a dark brown colour, tapering to a fine point; furnished with numerous, fine, close-set ribs, and an elevated, spiral line, turning round the bottom of each volution, becoming double at the base of the shell, and is lost in the upper part: aperture sub-orbicular, outer lip a little expanded; inner lip smooth, with a sub-canal. Length rather less than half an inch.

It varies in colour from light brown to a deep chestnut, but usually the latter. In some the outer lip is a little thickened at the margin.

DA COSTA says this species is found on the coasts of *Cornwall*. We have taken it on *Milton* sands on the south coast of *Devon*; but is certainly a rare *English* shell.

GEN.



GEN. XXV.

MUREX.



Animal a LIMAX.

SHELL, univalve, spiral, most times rough with membranaceous folds, or knobs.

Aperture ending in a strait, entire canal: sometimes slightly reflecting.



1.

DESPECTUS.

Murex despectus. *Lin. Syst.* p.1222.—*Gmel. Syst.* p.3547. 74.
Lister Conch. t. 913. f. 4.—*Id. Angl.* p.155.
t. 3. f. 1.

Martini Conch. iv. t. 138. f. 1292. & 1294.

Br. Zool. No. 98.—*Turt. Lin.* iv. p. 445.

Pult. Cat. Dorset. p. 43.

Don. Br. Shells. i. t. 31.

Buccinum magnum. *Da Costa* p. 120. t. 6. f. 4.

M. with a thick, strong, white shell, with seven or eight ventricose volutions, tapering to a fine point, faintly striated both transversely and longitudinally: aperture sub-oval; outer lip plain; inner lip replicated, smooth; *Columella*

mella at the base, in old shells a little twisted; tail, or canal, a little reflected; inside yellowish. Length five inches. Young shells sometimes of a ferruginous-brown.

This, the largest turbinated shell of the *British* seas, is local, but not uncommon in some parts. Inhabits the deep; sometimes dredged up with *Oysters*, and eaten by the poorer people; but more frequently used as a bait for *Cod* and other fish.

DA COSTA says, it is found in *Essex*, *Yorkshire*, *Scotland*, and *Ireland*. Doctor PULTENEY mentions it on the *Dorset* coast, but not plentiful. It must be extremely rare on the more western shores, as not a single specimen has ever occurred in *Devonshire*, or *Cornwall*: and we are assured by Mr. BRYER, it is a perfect stranger to the coast about *Weymouth*. Is sometimes taken in *Kent*.

Murex antiquus. Gmel. Syst. p. 3546. 73.

Don. Br. Shells. iv. t. 119.

Martini Conch. iv. t. 138. f. 1293. & 1296.

Br. Zool. No. 97.—Turt. Lin. iv. p. 445.

Murex carinatus. Br. Zool. t. 77. f. 96.—Turt. Lin. iv. p. 438.

Don. Br. Shells. iv. t. 109.

2.
ANTIQUUS.

M. with a strong shell of a pale brown colour: volutions eight, striated transversely, marked with faint longitudinal striæ: the middle of each volution rising into a strong, undulated, carinated ridge; sometimes two, but

L l

the

the lower one is most usually faint; the two smallest volutions are generally smooth: aperture oval, ending in a long canal; outer lip even, except where the ridges terminate; pillar lip a little replicated, smooth; inside livid-white. Length three inches and a half.

This shell seems to be subject to great variety: some are irregularly ribbed, which rise into angulated protuberances on the carinated ridge; others are strongly bicarinated, without the angular undulations. Mr. PENNANT's figure appears to have three plain ridges on each volution. GMELIN quotes a shell of MARTINI, which is not unlike our *despectus*. MARTINI seems to consider this as a variety of that shell, and has given several figures, that appear to run so much into each other, as to favour the opinion; one of which is not unlike the *carinatus* of the *British Zoology*. If it is a variety of the *despectus*, it is rarely found in our seas, except in *Scotland*; from whence we have received it.

3.
CORNEUS.

Murex corneus. *Lin. Syst.* p. 1224.—*Gmel. Syst.* p. 3552.97.
Lister Conch. t. 913. f. 5.—*Id. Angl.* t. 3. f. 4.
Br. Zool. t. 76. f. 99.
Pult. Cat. Dorset. p. 43.—*Turt. Lin.* iv. p. 449.
Don. Br. Shells. ii. t. 38.

Buccinum gracile. *Da Costa.* p. 124. t. 6. f. 5.

M. with eight strong, taper, white spires, transversely striated, and faintly wrinkled longitudinally; volutions rounded, divided by a strong separating line, or depression:
aperture

aperture oblong-oval; canal long, and a little reflexed. Length three inches; breadth an inch and a quarter. Live shells are usually covered with a brown *epidermis*.

DA COSTA says it is found in *Yorkshire*, *Northumberland*, and *Essex*; and in the *Orknies*, and other shores of *Scotland*; as well as on the *Irish* coast.

DOCTOR PULTENEY speaks of it as not very uncommon on the *Dorset* coast, at *Weymouth*, *Studland*, and *Poole*; most probably dead and mutilated specimens.

It is a pelagic shell, and rarely taken in a recent state, but by dredging in deep water. We have found it on some of the shores of *South Devon*, particularly at *Torbay*; and have taken it not uncommonly by dredging at *Torcross*; and sometimes at *Salcomb*; but in no one instance alive, though occasionally perfect; yet always more or less covered with extraneous matter. From this it must be inferred, that they either inhabit the deeper parts beyond the reach of the dredge, or the more rocky situations which cannot be searched by the usual means.

4.

Murex erinaceus. *Lin. Syst.* p.1276.—*Gmel. Syst.* p.3530. 19. ERINACEUS.

Lister Conch. t.942. f. 38?—*Gualt* t. 49. H.

Br. Zool t.76. f 95.—*Turt. Lin.* iv. p.432.

Don. Br. Shells. i. t. 35.

Pult. Cat. Dorset. p. 43.

Buccinum porcatum. *Da Costa.* p. 133. t. 8. f. 7. 7.

L l 2

M. with

M. with a very rough, strong, angulated shell, of a dirty white, or brownish colour; with seven or eight rugose spires much produced, and terminating in a fine point: on each volution are six or seven rugged, prominent, longitudinal ribs, crossed by transverse, elevated striæ: the whole shell imbricated with small concave, or arched scales, very conspicuous on the body: aperture oval; canal tubular; outer lip thickened by a rib, inner margin dented; pillar lip smooth glossy-white. Length an inch and three-quarters, and nearly an inch wide.

In very young specimens the gutter or canal is open, and the whole shell is covered with elevated points, which being sometimes worn, gives it a pretty cancellated appearance, and in this state may readily be mistaken for a distinct species.

This is not uncommon on many of our shores; but the finest and most perfect specimens are taken by dredging; sometimes a pretty variety, mottled or zoned with ferruginous and white.

5.

PURPUREUS.

Tab. 9. f. 3.

M. with a very rugose shell, of a dark purple colour, with sometimes a few spots or blotches of white: volutions nine or ten, rounded, and tapering to an extremely fine, sharp point, furnished with nineteen or twenty ribs, running a little oblique to the right; crossed by numerous sharp, elevated ridges, which rise into angles upon the ribs, making

making the shell very rough, and giving it a cancellated appearance: aperture narrow, oval, terminating in a strait canal; outer lip thin; margin white, crenated by the striae: *Columella* striated transversely oblique to the end of the canal, and somewhat tuberculated; inside purple, marked by the ribs. Length five-eighths of an inch; breadth a quarter of an inch.

This new, elegant, and rare species, we have taken a few of alive, by dredging in *Salcomb* bay, in *Devonshire*.

In all the specimens we have seen, the outer lip has been more or less white, with here and there a few obscure spots of the same colour, without regularity, on other parts of the shell.



6.

M. with a rugose shell, of a light brown colour: voluti- LINEARIS.
 ons seven or eight, rounded, and strongly ribbed, crossed by
 elevated striae or ridges, the summits of which are purplish-
 brown, and form fine, spiral, thread-like lines, all up the
 shell; these are, however, sometimes interrupted, as in
 some specimens a few of the ridges are plain brown: the
 shell tapers to a fine point, and is generally darkest at the
apex: in dead specimens that are bleached white, and
 have lost the lineated appearance, the *apex* is generally of
 a purple colour: the ribs are nine or ten in number:
 aperture oval, terminating in a strait canal; outer lip
 thickened at the back by a rib; margin within crenated;
 pillar

Tab. 9. f. 4.

pillar lip smooth. Length exceeding a quarter of an inch ; breadth one eighth.

This new and elegant species, we first discovered in sand from *Falmouth* harbour, and afterwards took several alive by dredging in *Salcomb* bay, in *Devonshire* ; but is a rare shell in both places.

7.

MURICATUS.

Tab. 9. f. 2.

M. with a strong, rough shell, with six or seven ventricose, tuberculated volutions, tapering to a fine point : the tubercles are formed by interrupted, longitudinal ribs, crossed by strong, elevated striæ ; and in some parts are pointed, or angulated : *apex* smooth : aperture oval, terminating in a long slender canal, which together, rather exceed the length of the rest of the shell ; outer lip sharp, and dentated at the edge ; margin within crenulated ; pillar lip smooth. Length half an inch ; breadth a quarter.

We procured a few of this new, and rare species, by dredging in *Salcomb* bay. It is generally covered with a thick orange-red *epidermis*, or extraneous matter, that obscures the markings ; beneath which the shell is white, tinged with flesh-colour, and sometimes stained greenish.

8.

TURRICULA.

Tab. 9. f. 1.

M. with seven taper, ribbed spires, of a white colour, and somewhat glossy, terminating in a fine point, and striated transversely : the volutions are strongly defined, not rounded,

rounded, but rise perpendicular above each other, the top of each being almost flat; the ribs at that part angulated, or turrited, and suddenly decline to the separating line: aperture narrow-oblong, ending in a broad canal; outer lip a little thickened by a rib; upper part angulated; pillar lip smooth. Length three-quarters of an inch; breadth rather more than a quarter.

We are indebted to Mr. BOYS for our first acquaintance with this species, who informs us, it is not uncommon on the shore of *Sandwich* in *Kent*.

Have since found it at *Biddeford* bay, in *Devonshire*, and on the south coast of *Wales*, particularly about *Tenby* and *Laugharne*.



9.

M. with six taper ribbed spires, of a pale rufous-brown RUFUS. colour, and sometimes chestnut: the volutions are generally furnished with fifteen or sixteen small ribs, striated transversely: aperture narrow, oblong, ending in a short canal; outer lip smooth, rarely thickened by a rib; pillar lip smooth. Length three-tenths of an inch; breadth one eighth.

This species is found with the last at *Sandwich*, *Biddeford* bay, and on the coast of *Wales*: we have also taken it on the south coast of *Devon*, and in *Dorsetshire*, where the other has never occurred. It has indeed, somewhat
the

the habit of that shell, but is readily distinguished from it, by being rather more slender, not so large in the body volution, the spires a little rounded, not flat at the top, and the colour is never white; the ribs, too, are generally more in number.

We have taken it alive by dredging on the coast of *Devonshire*, of a dark purplish colour, probably its usual appearance in that state: as all those of a different colour from other places were dead shells, and deprived of much of their beauty.

10.
SINUOSUS.
Tab. 9. f. 8.

M. with a strong, thick, white shell, with six costated volutions, tapering to a fine point: the spires are very little raised, and separated only by a fine thread-like line: the ribs are seven on each spire, strong, much elevated, and arched, but do not quite extend to the upper part of each: the whole shell is finely and regularly striated transversely, or across the ribs, and is most conspicuous in the depressions between them: aperture narrow, oblong-oval; canal short, and not much contracted; at the upper angle is a deep *sinus*; the outer lip is slightly thickened by a rib; inner lip replicated on the *Columella*. Length three-quarters of an inch; breadth a quarter.

We were favoured with this new, and rare species, by Mr. BRYER of *Weymouth*, who found it on the shore near that place. It is at once distinguished from all other *British* species,

species, by the singular *sinus* or gutter in the upper part of the outer lip.



Buccinum costatum. *Da Costa* p. 128. t. 8. f. 4.

11.

Murex costatus. *Br. Zool.* No. 100. t. 79? inner qua- COSTATUS.
drangle upper left figure.

Pult. Cat. Dorset. p. 43.

Don Br. Shells. iii. t. 91.

Murex truncatus. *Turt. Lin.* iv. p. 446.

M. with six taper volutions, furnished with eight or nine elevated ribs, destitute of any striæ, and frequently glossy: colour various; some are wholly of a deep purplish-brown, or chocolate, or partly mixed with white; others yellowish-white, with fine spiral streaks of brown, that look like striæ; and not unfrequently quite plain dull white, but such must be considered as dead, and injured shells: aperture narrow, terminating in a canal, very little more contracted than the rest of the mouth, and is nearly strait; outer lip usually thickened by a rib at the back, the margin thin; inner lip very little replicated. Length three-tenths of an inch at most; breadth one-eighth.

DA COSTA speaks of this species from *Cornwall* and *Devonshire*. We also found it in both those counties, particularly at *Falmouth* in the former; and at *Biddeford* bay, and *Salcomb* bay, in the latter; but only alive in the last place. It is likewise met with on some of the sandy shores of *South Wales*, especially about *Laugharne*.

M m

Doctor

Doct^r PULTENEY informs us, it is rare on the coast of *Dorset*; and Mr. PENNANT notes it from *Anglesea*.

Mr. BRYER favoured us with it from *Weymouth*.

It does not, however, appear to be plentiful any where; and is rarely procured in a recent state.



12.

ATTENUATUS.

Tab. 9. f. 6.

M. with an elegant, slender shell, with eight spires, regularly tapering to a very fine point, destitute of striæ, and furnished with nine equidistant, strong ribs: volutions scarcely raised, and separated only by a very fine line; the ribs are arched, or undulated, as they rise in the middle of each volution: aperture narrow, contracting a little at the canal, which is moderately long, and nearly strait: outer lip thickened at the back with a rib; inner lip plain. Length half an inch; breadth one-eighth, or rather more.

This shell, which we do not find described by any author, appears to be very rare, never having been able to procure more than three or four specimens; the first was in sand from *Falmouth* harbour, others from *Biddeford* bay, of an inferior size; all of which were of the same plain, yellowish-white colour, without striæ, or markings of any kind; one or two of which possessed a little gloss between the ribs.

It bears some resemblance to the *M. costatus*, but is
much

much more elegant in shape, more contracted in the aperture, and formed with a greater number of volutions.

In size it is nearly double that of the *costatus*, and is readily distinguished by its more slender form.



13.

M. with a slender shell, with nine or ten costated volutions, tapering to a fine point: the ribs are eleven or twelve in number crossed with numerous striae: these ribs do not continue throughout the shell, but are separated at the juncture of each spire by a flat space, at which part the transverse striae are uninterruptedly continued in a spiral direction up the shell, like fine threads; at the base of the body whirl, which is destitute of ribs, the transverse striae are stronger and more distant: the ribs are very convex or arched, giving the volutions a tumid appearance: aperture narrow; canal moderately long, ascending; outer lip a little spread, margin arcuated; inner lip very slightly thickened. Length seven-eighths of an inch; breadth two-eighths.

GRACILIS.

Tab. 15. f. 5.

This new, and elegant species, was picked up on the sands of *Biddeford* bay in *Devonshire*, and is the only one we could procure: the colour is yellowish, inclining to pale ferruginous in the futures, or divisions of the spires.



14.

Murex acuminatus. *Br. Zool.* t. 79? inner quadrangle lower right hand.

NEBULA.
Tab. 15. f. 6.*Turt. Lin.* iv. p. 446.

M m 2

M. with

M. with eight taper, costated spires, terminating in a sharp pointed *apex*, slightly, but elegantly reticulated, as if covered with fine gauze: the volutions are scarcely elevated between the ribs, and only separated by a fine thread-like line: aperture narrow, oblong-oval, ending in a canal turning a little to one side; outer lip sharp; inner lip replicate, smooth, glossy: colour various, sometimes yellowish-white, others pale purplish-brown, or rufous; but the most beautiful variety is of a blush-colour, with the decussated striae white.

Worn shells, that have lost the fine striae, might be confounded for the *M. costatus*, without proper attention: it is, however, in that state ascertained by the turn of the canal, by the aperture being much shorter and not so contracted, and by the superior number of ribs, which is ten or eleven, and those not so much elevated.

We have found this pretty shell at *Falmouth*; and on the north and south coasts of *Devonshire*, particularly *Bideford* bay: and have received it from the south coast of *Wales*, where it is not uncommon about *Tenby* and *Laugharne*. Also from *Weymouth*. It is, however, by no means plentiful, and good specimens rare: the largest rather exceed half an inch in length; and two-tenths of an inch in breadth.



15.
SEPTANGULARIS M. with seven or eight, strong, smooth, taper volutions,
Tab. 9. f. 5. terminating in a fine point, of a light purplish-brown colour

lour, and somewhat glossy; with seven longitudinal ridges, that run the whole length, scarcely interrupted by the separating line: the fides, or space between the ribs, are but little concave, which gives the shell a heptagonal appearance: aperture oblong-oval, ending in a short canal; outer lip sharp at the edge, thickened at the back by a ridge, the upper part contracted to an angle, where the margin is a little indented; pillar lip a little replicated. Length five-eighths of an inch; breadth two-eighths; but rarely so large.

Sometimes this shell is white at the junction of each volution; worn specimens are dull, opaque white.

We found this rare species first at *Falmouth*, and since alive in *Salcomb* bay, taken by dredging.

Have also received it, amongst some small shells, from Mr. BRYER, who found it at *Weymouth*.



16.

Murex fuscatus. *Lin. Syst.* p. 1225.

FUSCATUS.

Gmel. Syst. p. 3562. 145.

Gualt. t. 56. H.

Lister Conch. t. 121. 17.

Pult. Cat. Dorset. p. 43.

Turt. Lin. iv. p. 458.

Turbo tuberculata. *Br. Zool.* t. 82. f. 111*?

Turt. Lin. iv. p. 494.

M. with

M. with ten or twelve tuberculated spires, of a yellowish-brown colour, tapering to a fine point; the volutions are curiously wrought, with three or four series of crenulated striæ between the tuberculated spiral ridges: aperture small, oval, ending in a slight canal: the base spirally striated.

The tubercles in large shells extend into strong conic spires, on the lower volution; and sometimes run together into a sharp spiral ridge, like a screw.

This very rare *British* shell has been found at *Weymouth* by Mr. BRYER; it was about an inch and a half in length, and half an inch broad at the base.

Mr. PENNANT's shell is of this size, and was found on the coast of *Northumberland*.

PETIVER has given the figure of a shell, very much like that in the *British Zoology*, but does not state it to be *English*. Vide PETIVER's *Gazophylacium Naturæ*, Tab. 5. f. 5.

17.

TUBERCULARIS. M. with nine or ten, slender, taper, tuberculated volutions, separated only by a slight depression: colour chestnut-brown: *apex* pointed; aperture small, oval, ending in a canal, somewhat enclosed by the *Columella* turning inward. Length a quarter of an inch.

We

We found this species, in drifted sand, at the mouth of the *Aun* in *Devonshire*, sparingly. It has also been picked up on the coast of *Sandwich*, by Mr. Boys.

18.

Turbo turritus perversus novem anfractibus punctatus aper- ADVERSUS.
tura coarctata. Walk. Min. Shells. f. 48.

Chem. Conch. ix. t. 113. f. 966?

Turbo Punctatus. Turt. Lin. iv p. 501.

Adams Microsc. t. 14. f. 21.

M. with ten or eleven, reversed, tuberculated spires, tapering to a fine point: the volutions scarcely defined by the separating line, with three series of tubercles on each, the middle row smaller than the others: aperture oval, ending in a strait canal; base with two or three smooth, spiral ridges. Length three-eighths of an inch; sometimes, though rarely, half an inch; breadth not quite one-eighth. Colour opaque light brown.

This species has much the habit of the preceding, but is at once distinguished by the volutions turning the contrary way.

It differs also a little in the shape of the aperture and canal: and particularly, in the middle series of the tubercles being smaller.

We first received this shell from Mr. Boys, for that of WALKER's above quoted; and have since found it sparingly on the *Cornish* and *Devonshire* coasts.

Strom-

RETICULATUS.

Strombiformis reticulatus. *Da Costa* p. 117.

Murex reticulatus. *Pult. Cat. Dorset.* p. 43.

Borlase Corn. p. 277.

M. with eleven or twelve, much reticulated volutions, of a rufous-brown colour; strong, slender, and tapering to a very fine point: on each volution are four spiral ridges, intersected by longitudinal furrows, running a little oblique, forming the whole surface equally reticulate: the separating line small, and not much depressed: aperture oval, angulated at the upper part, the lower end a little contracted into a slight canal, or gutter; outer lip thin, a little indented by the spiral ridge; pillar lip replicated; base not reticulated. Length five-eighths of an inch; rather more than one eighth broad.

This species is extremely common on some parts of the *Cornish* coast, particularly in the sand, dredged from *Falmouth* harbour for the purpose of manure: and frequently found adhering to ships cables in heaving the anchor.

It seems to grow more scarce eastward; though we have found the largest specimens in *Devonshire*. Is noticed by Doctor PULTENEY on the *Dorsetshire* coast: and has very rarely been taken at *Sandwich* in *Kent*. Have also met with it in *South Wales*.

A variety has one or two strong ribs crossing some of the volutions.

This

This shell may easily be discriminated from the *M. tubercularis* by the aperture, which is only a little contracted at the end, forming a sub-canal; whereas the other is a perfect slender tail, or gutter.

20.

Murex quinque anfractibus spiraliter striatis, costis remotis, MINUTISSIMUS.
canali clauso. *Lin. Trans.* iii. p. 65. (*Adams.*)

Shell with five spiral striated whorls, and remote ribs:
beak closed. *Turt. Lin.* iv. p. 460.

A minute, elegant, and pellucid shell, from the coast
of *Pembroke*shire.

 GEN XXVI.

 TROCHUS.

Animal a LIMAX.

SHELL, univalve, spiral, sub-conic.

Aperture, sub-tetragonal, in some angulated, in others rounded; transversely contracted.

Columella, oblique.

1.

ZIZIPHINUS.

Trochus ziziphinus. *Lin. Syst.* p. 1231.—*Gmel. Syst.* p. 3579. 80.

Chem. Conch. v. t. 166. f. 1592. 1594.

Lister Conch. t. 616. f. 1. —*Id. Angl.* t. 3. f. 14.

Br. Zool. t. 80. f. 103.

Da Costa. p. 37. t. 3. f. 2. 2.

Borlase Corn. t. 28. f. 7.

Turt. Lin. iv. p. 472.

Pult. Cat. Dorset. p. 44.

Don. Br. Shells. ii. t. 52.

Trochus Conulus. *Br. Zool.* t. 80. f. 104.

T. with a conic shell, terminating in a very fine point, with seven or eight volutions, wrought with several spiral ridges;

ridges; the first of these in each volution is larger, and more prominent than the rest, and serves to mark their divisions: colour livid, or reddish; in some darker, and of a purplish hue, streaked with longitudinal, broad, waved lines of a deeper shade, which are most distinct on the larger ridge, at the bottom of each volution: aperture somewhat compressed, angulated: inside nacreous: base flattish, with circular ridges, generally of a paler colour than the rest of the shell, and without spots; imperforated.

The upper volutions are frequently finely tuberculated, but not easily perceived by the naked eye.

It is a common species on many of our shores; plentiful about *Marazion* in *Cornwall*, and on the coast of *South Devon*; frequently found with *Turbo littoreus*, adhering to stones, between high and low-water mark. Length one inch; breadth at the base nearly the same.

Animal yellowish, mottled with reddish-brown; *tentacula* filiform, rufous-brown, paler beneath; eyes pedunculated; on each side the body above the *sustentaculum*, four very small filiform appendages on each side.

Trochus fragilis. *Pult. Cat. Dorset.* p. 44.

Trochus papillofus. *Da Costa,* p. 38. t. 3. f. 3?

Gualt. t. 61. G. M.

Trochus Granatum. *Gmel. Syst.* p. 3584?—*Turt. Lin* iv. p. 476?

Chem. Conch. v. t. 170. f. 1654—5?

N n 2

T. with

2.

TENUIS.

Tab. 10. f. 3.

T. with a thin, fragile, conic shell: in shape and general appearance much like *T. ziziphinus*; but is readily distinguished by the fine granulated ridges that compose each volution, without the larger one at the base of each, so conspicuous in that shell. The aperture is not so much angulated; the base more rounded, and marked with numerous, small, reddish spots, never observed in the other species; the volutions too are more rounded; and the shell not so thick and strong: base imperforated: the *Columella* reflects a little, and forms a small ridge and depression in the place of an *umbilicus*: colour brown, with broad, longitudinal, deeper coloured stripes; sometimes flesh-coloured, with a few faint pink markings. Length an inch and a quarter; breadth rather less.

This species has probably been confounded with the *T. ziziphinus*, and may possibly be the variety of that shell described by LINNÆUS, in the *Museum Reginae*, as being *tota pallida anfractibus basi gibbis, striatis, subtilissime punctis papillofis*.

DOCTOR PULTENEY, who favoured us with this shell, says it is found on the north shore at *Poole*, and at *Weymouth*.

DA COSTA's description answers in most respects; but his shell is stated to have a wide and deep cavity at the base, at the bottom of which a tortuous *umbilicus* is seen.

This, however, his figure does not in the least express; he adds also, that the inside is white, but not pearly: this
might

might be in a dead and worn specimen, but in recent shells that part is of a fine pearly hue. Possibly some variety of this species may be umbilicated, as in some specimens we have seen a strong inclination towards it. DA COSTA received his from *Cornwall*, but says, he never met with it from any other *British* coast.

Not *T. fragilis* of GMELIN; have therefore not adopted Doctor PULTENEY's name, which at the time of writing he had probably overlooked the circumstance of its being preoccupied for a different shell.

Trochus exiguus. *Pult. Cat. Dorset.* p. 44.

Lister. Conch. t. 616. f. 2.

Trochus exasperatus. *Br. Zool.* No. 105.

Trochus Conulus. *Da. Costa.* p. 40. t. 2. f. 4. 4.

Don. Br. Shells. i. t. 8. f. 2.

Trochus erythroleucos. *Gmel. Syst.* p. 3581?

Turt. Lin. iv. p. 473?

Chem. Conch. v. t. 162. f. 1529. a. b.

3.

EXIGUUS.

T. with a strong conic shell, with six volutions, terminating in a fine point; each volution wrought with four or five small, spiral, crenated ridges: the wreaths defined by a broad, and more elevated ridge, finely cut diagonally with striæ, or notches, that give it the appearance of twisted cord; the interstices between the ridges, are very finely striated in the same direction: colour various, cinereous-brown, or purplish: the larger ridge frequently red, and

and sometimes spotted with white: the *apex* almost uniformly of a fine deep crimson: the base imperforated, marked with circular ridges: aperture angulated; inside white, not pearly. Length rarely three-eighths of an inch; breadth a quarter of an inch.

This is not the *T. Conulus* of LINNÆUS. It has much the habit of *T. ziziphinus*, but on comparison will be found perfectly distinct; that shell not possessing the fine crenulated ridges, so conspicuous in this species; is also more pyramidal than that shell; and most times readily distinguished by the crimson tip.

DA COSTA received it from the coast of *Devonshire*; and says that it is not uncommon on the *Sussex* coast.

DOCTOR MATON in his *Western Tour* says, he found it at *Treryn cove*, near the lands end, in *Cornwall*.

DOCTOR PULTENEY gives it as a *Dorset* shell, but speaks of it as rare. We have not been fortunate enough to find it either on the *Devon* or *Cornish* coasts, and consider it as a scarce shell in *England*, never having occurred to us, except on the shore between *Weymouth* and *Portland*.

4.
STRIATUS.

Trochus striatus. *Lin. Syst.* p. 1230.—*Gmel. Syst.* p. 3579. 78.
Pult. Cat. Dorset. p. 44.
Turt. Lin. iv. p. 471.—*Gualt.* t. 61. f. N.
Lister Conch. t. 621. f. 8.

Trochus

Trochus striatus. *Chem. Conch.* v. t. 162. f. 1527. 28.

Trochus parvus. *Da Costa* p. 41.

T. with a conic shell, tapering to a fine point: volutions six, flat, and scarcely defined by any separating line; each wrought with eight or nine fine spiral ridges, intersected by very small longitudinal striæ, most conspicuous in the larger volutions: colour cinereous, with interrupted, longitudinal, dark, purplish-brown lines; sometimes of a dull crimson or purplish hue, with darker lines of the same colour; the streaks in some are broad, in others narrow: aperture angulated; inside pearlaceous, except at the margin of the lip: base flat, with fine circular ridges: imperforated. Size of the *exiguus*, and has much the habit of that shell, but is readily distinguished, not only by the colour, but by being broader at the base, and in wanting the large spiral ridge at the bottom of each volution; as well as the crimson tip. The pearlaceous inside appears also another distinguishing character, as well as the superior number, and fineness of the ridges on each volution.

We have found this species plentiful amongst sand from *Falmouth* harbour; and not uncommon in *Devonshire*, particularly in one part of *Salcomb* bay, where we have taken them alive from the rocks at extraordinary low tides; but are seldom uncovered by the water. It is also found on the *Dorset* coast sparingly. Is not the *T. parvus* of Mr. ADAMS given in the *Linnæan Transactions*, vol. iii. t. 65. the young of this species?

Trochus

5.
TUMIDUS.
Tab. 10. f. 4. 4.

Trochus Naffaviensis. Chem. Conch. v. t. 171. f. 1676 ?

T. with a strong, sub-conic, tumid shell, with five volutions, wrought with extremely fine, close-set, spiral striæ, interrupted only by a deep separating line; the volutions project considerably, but are not rounded: the point is small, but not taper; at the bottom of the body whirl is a sub-carinated edge: the base is a little rounded, and furnished with a small *umbilicus*, frequently decreasing with age, and sometimes almost closed in the larger shells: aperture sub-quadrangular, pearly within: colour principally cinereous-brown, sometimes with a yellowish cast, and rarely of a dark purplish-brown; all more or less streaked with fine, obscure, undulated lines, longitudinally: the purplish coloured specimens are sometimes spotted with white at the top of each volution. Length seldom more than a quarter of an inch, and never quite three-eighths; breadth usually more than its length. The outer coat of this shell is extremely thin, under which the mother of pearl, gives it a singular bronze appearance, in some particular points of view.

This may be considered by no means a plentiful species. We have hitherto only taken it alive, by dredging, in *Salcomb* bay, where it is frequently found adhering to stones and broken shells: dead ones are met with sometimes on other parts of the coast of *Devon*, particularly at *Torcross*, amongst *algæ* brought on shore by the seine, and other fishing nets; these are most times occupied by the smaller *Cancer Bernardus*.

Have

Have also received a single specimen from *Wales*, and another from *Kent*; and observed one in Mr. BRYER's cabinet at *Weymouth*, found on that shore.

Animal pale, with a few dusky spots above at the posterior end, and a transverse streak of the same behind the lip: *tentacula* two, setaceous; eyes black, placed on pedicles behind the *tentacula*, and capable of turning about in various directions: on the sides of the posterior end are four slender appendages, originating from under the corneous *operculum*, which is fixed to that part.



Trochus crassus. *Pult. Cat. Dorset.* p. 44.

Trochus lineatus. *Id.* p. 44.

Turbo lineatus. *Da Costa* p. 100. t. 6. f. 7.

Don. Br. Shells. ii. t. 71.

Turt. Lin. iv. p. 480.

6.

CRASSUS.

T. with a strong, thick, sub-conic shell, with five rounded volutions, separated by a small depressed line: *apex* moderately pointed when perfect, but generally worn and decorticated: colour cinereous, or light brown, covered with fine, close-set, zigzag lines, of purplish-brown; and sometimes dark purplish-black: aperture rounded on the outer lip, angulated at bottom, furnished at that part with a blunt, tooth-like protuberance; outer lip acute, inner margin purplish; pillar lip smooth, white, not pearly; the white part extends almost across the base, and is a little flattened as if worn, but is an invariable character: in some a slight

O o

umbilicus,

umbilicus, others totally devoid of such a mark: inside pearly. Length an inch; breadth rather less.

This species varies a little in shape; some are more conic, and the volutions more round and tumid than others; but are always readily distinguished from any other of the genus by the tooth, and the flat white space at the base.

The outer coat is rather thick, but when removed, the whole shell except the *apex*, is of a beautiful mother of pearl.

DA COSTA, who first noticed this shell from *Cornwall*, *Devonshire*, *Dorsetshire*, *Caernarvonshire*, *Hampshire*, and *Norfolk*, has placed it in the *Turbo* genus, from the sub-orbicular shape of the mouth. It is, however, sufficiently angulated to rank it amongst the *Trochi*.

We have found it plentiful in many of the places mentioned by DA COSTA, particularly on the rocks at *Marazion* in *Cornwall*, not unfrequent near *Falmouth*, and very common on many parts of the coast of *South Devon*.

It is always found adhering to rocks, or loose stones, and seldom below mid-tide.

DOCTOR PULTENEY sent us the young of this shell, rather more than half grown, for his *Trochus lineatus*.

Animal dusky-cinereous, frequently speckled with white, with two long, slender, pale *tentacula*, streaked transversely,

ly, or annulated with black: eyes at the base of the *tentacula* behind, placed on short, broad pedicles: margin of the body, above the *sustentaculum*, furnished with a scalloped, fin-like membrane; beneath which, on each side, are three long filiform appendages annulated with black, that are continually in motion: behind the left eye is a sort of plume, composed of several simple contiguous fibres.



7.

Trochus Magus. *Lin. Syst.* p. 1228.—*Gmel. Syst.* p. 3567. 7. MAGUS.

Lister Conch. t. 640. f. 32?

Chem. Conch. v. t. 171. f. 1656. to 1660.

Br. Zool. t. 80. f. 107.—*Turt. Lin.* iv. p. 462.

Pult. Cat. Dorset. p. 44.

Don. Br. Shells. i. t. 8. f. 1.

Trochus tuberculatus. *Da Costa.* p. 44. t. 3. f. 1. 1.

T. with five or six, tumid, but rather depressed volutions, marked by a deep separating line, and terminating in a very fine point: the volutions are wrought with fine spiral ridges, or striae, and the upper part of each undated, or tuberculated, most conspicuous in the two largest: colour various, but most times white, or blush, elegantly marked with undulated stripes and blotches of crimson, purple, or chesnut-brown; and sometimes prettily spotted all over with pink: aperture compressed, angulated: *umbilicus* large and deep. Size, usually about an inch diameter at the base, and three-quarters of an inch high; sometimes, though rarely, an inch and a half broad.

The young of this species is frequently of a plain, light-brown colour, strongly marked with close-set, longitudinal striae between the ridges: the base projecting into a sub-carinated edge, above which the sulcus is crenated.

It is not uncommon on many of our shores; very plentiful at *Falmouth*, amongst the sand from the harbour, of an extraordinary size; but mostly worn, and mutilated.

We have taken it alive, by dredging, in *Salcomb* bay, and other parts of *Devonshire*; but is rarely found in that state above the lowest water-mark.

Animal with two moderately long, setaceous *tentacula*, annulated with black; behind which, at the base, are placed the eyes on peduncles: upper lip ciliated: the sides of the body furnished with several filiform appendages.

3
CINERARIUS.

Trochus cinerarius. *Lin. Syst.* p.1229.—*Gmel Syst.* p.3568.12.
Lister Conch. t. 641. f. 31.—*Id Angl.* t. 3.
f. 15?

Chem. Conch. v. t. 171. f. 1681? f. 1686.

Br. Zool. No.106.*—*Turt. Lin.* iv. p.463.

Don. Br. Shells. iii. t. 74. two upper and
two lower figures.

Trochus lineatus. *Da Costa.* p. 43. t. 3. f. 6. 6.

T. with a conic, spirally striated shell, not quite regularly taper, but terminating in a small produced *apex*: the
volutions

volutions are not much raised, but separated by a fine line: colour cinereous, marked with fine, approximate, undulated lines of brown; sometimes of a purplish hue, that cover the whole shell in a longitudinal direction: aperture angulated; *umbilicus* small, but deep. Size at the base five-eighths of an inch diameter; height the same. Young shells are more flattened, or at least are broader in proportion to their height; but the *apex* is always produced and pointed.

This is a very common species on most of our shores, but has frequently been confounded with the next, though so essentially different.

Doct^r PULTENEY has certainly fallen into this error, in making the *T. cinerarius* of PENNANT, and the *umbilicalis* and *cinereus* of DA COSTA the same.

Animal very like that of the *T. crassus*, but paler; *tentacula* and *cirri*, or feelers on the sides of the body, rather less annulated, the former in some points of view appear slightly ciliated: on the forehead a scalloped membrane divided in the middle. In a very pretty drawing executed by Mr. HENRY BOYS, we perceive four slender filaments on one side of the body and three on the other; but in all those we have examined there were only three on each side; and were destitute of the plume, observable in the animal of *T. crassus*. It is probable these *cirri* on the sides may belong to the whole of this genus.

Trochus

UMBILICATUS.

Trochus umbilicaris. *Br. Zool.* t. 80. f. 106.

Lister. Conch. t. 640. f. 29?

Chem. Conch. v. t. 171. f. 1685.

Trochus umbilicalis. *Da. Costa.* p. 46. t. 3. f. 4. 4.

Trochus cinerarius. *Pult. Cat. Dorset.* p. 44.

Don. Br. Shells. iii. t. 74. three middle figures.

T. with a strong, flattish shell, rounded at the top; the *apex* depressed, and not pointed: the volutions are five, nearly even, defined only by a fine, thread-like line, and wrought with nearly obsolete spiral striæ: colour white, or greenish, marked with longitudinal, waved, or zigzag lines of a light or dark purple: aperture compressed, angulated: *umbilicus* large, and perforated to the *apex*. Diameter, at the base, three-quarters of an inch; height not five-eighths of an inch. Young shells are extremely flat; those of three-eighths of an inch at the base, scarce rise in height one eighth.

No two shells seem to have puzzled conchologists more than this and the preceding, and even the later authors have heaped confusion upon confusion; some have made them the same, others have reversed their trivial names, or multiplied them into three distinct species, from some accidental markings. Mr. PENNANT, though very concise, seems to have defined the distinction pretty well; but has erred in marking this shell the *umbilicaris* of LINNÆUS; that species is very different, and not found in *England*.

Upon

Upon a strict examination of a great variety of both these species, we are astonished they could ever have been confounded. This shell is invariably more rounded at the top, more compressed or flattened, and the *apex* more depressed; and, what is remarkable, the *apex* is so thinly covered, that it is usually worn, and the *Columella* becomes pervious; so that if a small pin is introduced at the *umbilicus* the point may be felt at the *apex*.

In the colour they are essentially, and invariably different; the streaks of this are always broader, and of a much finer colour; whereas the *cinerarius* is constantly of a dull cinereous, with the streaks so fine and regularly disposed, as to make the shell appear longitudinally striated.

Animal much like that of *T. cinerarius*, but darker and more strongly marked with black annulations on the *tentacula*, and lateral *cirri*: eyes pedunculated the same, and situated behind or rather on the outside of the *tentacula*.



10.

TERRESTRIS.

Trochus terrestris. *Br. Zool.* t. 80. f. 108.

Don. Br. Shells. iv. t. 111.

Chem. Conch. ix. t. 122. f. 1045. a. b. c.

Lister Conch. t. 61. f. 58.

Favan. t. 64. O. 1. 3.— *Turt. Lin.* iv. p. 471.

Petiver Gaz. t. 22. f. 10.

Trochilus exiguus quatuor spirarum elegantissime striatus. *Morton Northamp.* p. 416.

Trochilus terrestris Mortoni. *Da Costa.* p. 36.

Trochus terrestris tertius. *Id.* p. 36.

T. with

T. with a thin, conic shell, of a livid-white colour, with five or six volutions nearly flat, finely striated longitudinally, divided by a very small depressed line, and a prominent ridge at the base of each: *apex* produced, but not very pointed: aperture much compressed, angulated: base flat, striated from the centre: umbilicated: round the base a strong carinated edge. Diameter rather more than a quarter of an inch; height not quite so much.

There can be little doubt but this is the same as that found by MORTON in *Northamptonshire*, and afterwards by Mr. HUDSON in the mountains of *Cumberland*, communicated to Mr. PENNANT. DA COSTA does not appear to have been acquainted with this shell, but has taken his description from the authors above quoted. He also gives another species, which he calls *Trochus terrestris Listeri*, and quotes LISTER'S *Anglica*, MORTON'S *Northampton*, and the *Philosophical Transactions*. This we are inclined to think is our *Helix trochiformis*.

The *Trochus terrestris* is the only true land shell of that genus found in *England*, and may be considered as very rare. It may not however be improper to remark in this place, that many of the long *Turbines* may readily be mistaken for *Trochi* in their infant state, when only three or four volutions are formed; the base of which is generally flat, and the aperture transversely compressed.

Such we have frequently received from our friends for new species of *Trochi*; in particular the *Turbo Muscorum*.

Trochus

Trochus fuscus. *Turt. Lin.* iv. p. 471.

FUSCUS.

Adams Microsc. t. 14. f. 24.

Trochus umbilicatus quinque anfractibus marginatus apertura subrotunda. *Walk. Min. Shells.* f. 58.

The five-spined, umbilicated, margined top shell, with a roundish aperture.

The colour opaque-brown. From *Sandwich*; common.

Not being acquainted with this species, we have been obliged to copy Mr. WALKER's description. The figure given is about the size of our *T. tumidus*; possibly a variety of that species, unless a small figure was forgot to be given.



Trochus cinereus. *Da Costa.* p. 42. t. iii. f. 5. 5.

CINEREUS.

This species, which DA COSTA speaks of as common in *Sussex*, *Essex*, *Cornwall*, *Cheshire*, *Northumberland*, and in the *Orknies*, we have never been fortunate enough to identify; possibly it is only a variety either of the *T. cinerarius*, or *T. umbilicatus*.

DOCTOR PULTENEY considered it as a variety of the former: but, notwithstanding, we think it right to give it a separate place, on account of some characters which must create a doubt of its being either of those shells.

It is thus described: "The shell is thick and strong, of
P p the

the size of a cherry, shape obtusely pyramidal, or not quite tapering to a point.

The base is very concave, with some circular furrows; the mouth roundish and capacious, within fine mother of pearl; the outer lip smooth and even: the inner, or pillar lip, has two jags or slight teeth, and two furrows crossing it transversely: from hence it widens, runs oblique, and forms a spacious cavity, at the bottom of which lies the *umbilicus*, deep, cylindric, and so hollow as to admit the head of a large pin. All this part is of a dark ash, greatly variegated with blackish lines or streaks, which run lengthways and across: but the beginning of the *umbilicus* is generally pearly, and of a fine light greenish colour. The body and turban have five bellied, or swelled, wreaths or whirls, separated by a very depressed line; they are circularly striated, but faintly, and the colours are exactly the same as on the base.

The outer coat being taken off, the whole shell is fine mother of pearl.

DA COSTA has quoted WALLACE, LISTER's *Conchology*, DALE, and WALLIS, but we can find nothing that throws more light upon the subject.

The structure of the aperture certainly indicates a distinct species, as none of the *British Trochi* possess any thing like two teeth, as a permanent character; at the
same

same time, so common a shell as it is described to be, can hardly be supposed to escape the notice of conchologists of the present day.

We must, therefore, either conclude DA COSTA was deceived with respect to its being common; that it is only a variety of one of the more plentiful species; or suspect that the shell in question is foreign, as is the figure quoted in LISTER, tab. 633.

END OF PART I.

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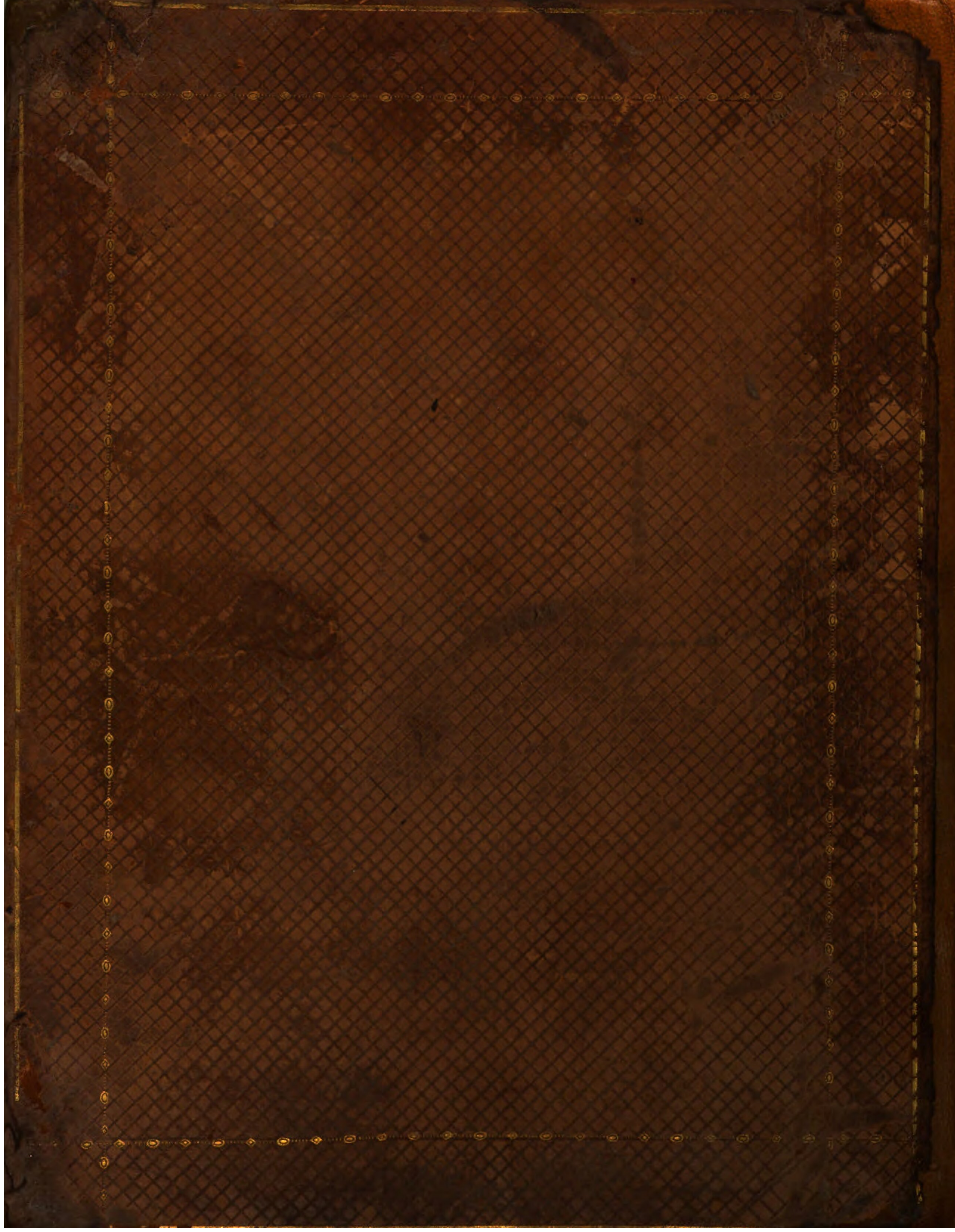
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